MILITARY COMMISSIONS TRIAL JUDICIARY
GUANTANAMO BAY, CUBA

UNITED STATES OF AMERICA **v.** **ABD AL HADI AL IRAQI**	**AE 103** **~~(U)~~ Defense Motion** to Compel Appointment and Funding of Defense Expert on an Expedited Basis **6 October 2017**

1. ~~(U)~~ Timeliness.

~~(U)~~ This Motion is timely filed pursuant to Military Commissions Trial Judiciary Rule of Court 3.7.c.(1).

2. ~~(U)~~ Relief Sought.

~~(U)~~ Mr. Nashwan al-Tamir, by and through counsel, respectfully requests the Commission order the Convening Authority to appoint and approve funding for James C. Cobey, MD, MPH, FACS, to provide expert assistance in the field of orthopedic medicine and spinal surgery. Dr. Cobey is necessary to allow the Defense to ascertain whether Mr. al-Tamir is medically able to participate in his defense and is fit to stand trial. Dr. Cobey will assist the Defense in fully understanding Mr. al-Tamir's current medical condition, to include the course of treatments administered during his time in United States custody. Furthermore Dr. Cobey will assist counsel in understanding the standard of medical care required in treating debilitating back pain caused by degenerative disc disease and spinal stenosis.

3. ~~(U)~~ Overview.

~~(U)~~ The Commission should order the Convening Authority to appoint and fund Dr. Cobey—

his assistance is necessary to fully understand Mr. al-Tamir's medical condition and treatment history and ensure his physical competence to participate in his defense, including his fitness to stand trial.

~~(U)~~ Mr. al-Tamir has the right under the Fifth and Sixth Amendments and Rule for Military Commissions ("RMC") 703(d) to the assistance of experts that will aid in preparation of his defense.[1] Expert assistance in the form of consultation regarding Mr. al-Tamir's medical condition and treatment history is necessary to prepare an adequate defense for Mr. al-Tamir, specifically with regard to his ability to participate in his own defense and his fitness to stand trial. Denial of this motion will violate Mr. al-Tamir's rights guaranteed by the Fifth and Sixth Amendments to the Constitution, the Military Commissions Act of 2009, international law, and fundamental fairness.

4. ~~(U)~~ Burden of Proof.

~~(U)~~ As the moving party, the Defense must demonstrate by a preponderance of the evidence that the requested relief is warranted.[2]

5. ~~(U)~~ Facts.

a. The facts set out in AE 098, AE 098B, AE 099, AE 099D, AE 099F and AE 099H are incorporated herein.

b. ~~(U)~~ Defense counsel submitted a memorandum to the Convening Authority on 1 September 2017 entitled "Emergency Request for Expert Assistance - Neurological Surgery."[3]

c. ~~(U)~~ Attachment B details the history of the United States' callous indifference toward Mr. al-Tamir's chronic and deteriorating degenerative disc disease and associated

[1] ~~(U)~~ *Ake v. Oklahoma*, 470 U.S. 68 (1985).
[2] ~~(U)~~ RMC 905(c)(2).
[3] ~~(U)~~ Attachment B.

symptomology. The Emergency Request for Expert Assistance outlines Mr. al-Tamir's inability to obtain appropriate medical care in the hands of Joint Task Force ("JTF") Guantanamo and the Government's failure to provide Mr. al-Tamir or his Defense counsel with current medical records.

d. ~~(U)~~ On 31 August 2017, Mr. al-Tamir informed counsel that his back pain was getting worse; he was unable to control his bladder and the loss of sensation in his legs made it impossible for him to stand or walk. After receiving this report, Defense counsel contacted Physicians for Human Rights ("PHR") to seek consultation.

e. ~~(U)~~ Medical doctors affiliated with PHR determined that progressive back pain coupled with bladder incontinence and loss of motor and sensory function in the legs, was consistent with a serious neurological impairment.[4] The doctors opined that Mr. al-Tamir's condition was dire, and required immediate emergency medical care.[5] On 1 September PHR's letter was sent to Guantanamo authorities to urge them to act quickly and consistent with the required standard of medical care. Defense counsel did not receive a response from the JTF or any other government representative.

f. ~~(U)~~ Because Mr. al-Tamir's symptoms were consistent with a serious neurological impairment, medical doctors from PHR and Defense counsel consulted with Dr. Cobey. Dr. Cobey is an orthopedic spine surgeon who has 30 years of extensive experience performing spinal surgeries.[6]

g. ~~(U)~~ Dr. Cobey wrote a letter on 1 September in which he opined that Mr. al-Tamir's symptoms suggest compression of the spinal cord and/or spinal nerves requiring immediate

[4] ~~(U)~~ *Id.* at Enclosure B.
[5] ~~(U)~~ *Id.*
[6] ~~(U)~~ Attachment C.

diagnostic imaging and surgical intervention.[7]

h. ~~(U)~~ After a review of a handful of Mr. al-Tamir's medical records, Dr. Cobey wrote a second opinion letter.[8] According to Dr. Cobey, the January 2017 CT scan of Mr. al-Tamir's spine readily identified a "severe neural encroachment" of his facet joints.[9] Dr. Cobey reported that Mr. al-Tamir's symptoms were consistent with the review of available medical records. Dr. Cobey opined that the compression of Mr. al-Tamir's spinal cord and/or spinal nerves required immediate diagnostic imaging and surgical intervention.[10] Additionally, according to Dr. Cobey the treatment plan proposed by the Government was unacceptable and inconsistent with the standard of care.[11]

i. ~~(U)~~ On 7 September 2017 Defense counsel learned—not from official government channels but, from Carol Rosenberg, a reporter with the Miami Herald—that Mr. al-Tamir had emergency back surgery.[12] According to Ms. Rosenberg's article the Department of Defense determined that Mr. al-Tamir's health had reached an unsafe status and therefore it authorized a surgical team to be flown to Mr. al-Tamir at the same time Hurricane Irma was rushing towards Guantanamo.[13]

j. ~~(U)~~ After the surgery, the Government refused to provide information or updates to Mr. al-Tamir's medical status. Defense counsel learned from Mr. al-Tamir that an emergency operation on his lower back was performed on 5 September 2017. Also, counsel learned that a second surgery would most likely occur in the future, some weeks or months down the road.

[7] ~~(U)~~ Attachment B at Enclosure A.
[8] ~~(U)~~ Attachment D.
[9] ~~(U)~~ *Id.*
[10] ~~(U)~~ *Id.*
[11] ~~(U)~~ *Id.*
[12] ~~(U)~~ Attachment E.
[13] ~~(U)~~ *Id.*

The delay between the two surgeries was to allow Mr. al-Tamir time to recuperate after the first surgery.

k. ~~(U)~~ In the days following the 5 September 2017, surgery Mr. al-Tamir was in excruciating pain and fundamentally immobilized. Mr. al-Tamir could not walk, without the assistance of two people, and his left hand continued to lose sensation. Despite his condition, Mr. al-Tamir [redacted] could not perform minimal functions of daily living without medical assistance.

l. ~~(U)~~ Unbeknownst to Defense counsel, the Department of Defense made a decision to fly a second surgical team and special equipment, such as a special hospital bed, back to Guantanamo for another emergency surgery – this time on Mr. al-Tamir's cervical spine.

m. ~~(U)~~ On 14 September, the Legal Advisor to the Convening Authority notified the Deputy Chief Counsel of the Military Commission Defense Organization that Mr. al-Tamir would receive a second emergency surgery, this time on his cervical spine. The Legal Advisor also stated that Mr. al-Tamir would not be permitted to meet with his counsel for four to six weeks following the second operation.[14]

n. ~~(U)~~ Defense counsel have continually emailed JTF authorities requesting updates to Mr. al-Tamir's medical condition to include: the surgical procedures performed; the anticipated outcome of the surgeries; a list of medications being taken by Mr. al-Tamir and all pertinent medical records.[15]

o. ~~(U)~~ Government authorities did not disclose the nature of either the 5 September or 18 September surgeries or outcomes to Defense counsel until Friday, 22 September.

p. ~~(U)~~ On 22 September 2017 Defense counsel received two documents (one undated

[14] ~~(U)~~ *See* AE 099D, Attachment B.
[15] ~~(U)~~ *See Id.*, Attachment D.

and the other dated 20 September 2017) each entitled "MEMORANDUM FOR THE RECORD" signed by the JTF Commander, Real Admiral Edward Cashman.[16]

q. ~~(U//FOUO)~~ The undated MEMORANDUM FOR THE RECORD states there was a "recent medical emergency" that led to the emergency L4-L5/L5-S1 laminectomy on 5 September 2017.[17] This memorandum states the Mr. al-Tamir was recuperating and that no other acute medical intervention was required. The memorandum also documents that Mr. al-Tamir's treatment was consistent with "accepted medical standards" and that Mr. al-Tamir was "recovering as expected." The memorandum fails to provide any information about the need for a second surgery or that Mr. al-Tamir's legs and left arm remained weak and sensationless, that he was immobile and that his health continued to decline.

r. ~~(U//FOUO)~~ The memorandum dated 20 September 2017 states that a cervical surgery previously anticipated by medical doctors had been accelerated. On 18 September 2017 a C3-4/C4-5/C5-6 anterior cervical discectomy and fusion was performed on Mr. al-Tamir.[18] According to the memorandum, Mr. al-Tamir's surgery was "successful in decompressing his cervical spine" and although Mr. al-Tamir developed a "known complication" of post-operative C5 nerve palsy resulting in weakness in his left arm, he was recuperating in an inpatient acute care unit and no acute medical intervention is required.[19]

s. ~~(U)~~ On 27 September, Defense learned from Mr. al-Tamir that on or about 23 September he underwent a *third* surgery. Despite repeated requests for information about this surgery, Government officials refuse to provide any information about Mr. al-Tamir's third

[16] ~~(U)~~ Attachments F and G.
[17] ~~(U)~~ Attachment F.
[18] ~~(U)~~ Attachment G.
[19] ~~(U)~~ *Id*.

surgery or current medical status.[20]

t. ~~(U)~~ The Convening Authority denied counsel's Emergency Request for Expert Assistance on 18 September 2017.[21]

u. ~~(U//FOUO)~~ On 4 October 2017, Defense counsel received a third document entitled "MEMORANDUM FOR THE RECORD" signed by the JTF Commander, Real Admiral Edward Cashman, dated 3 October 2017, and documenting the third surgery performed on Mr. al-Tamir.[22] The MEMORANDUM FOR THE RECORD documents that Mr. al-Tamir developed a pulmonary embolism, which is a "known risk" in the post-operative period. A decision was made by medical experts within "Pulmonary/Critical Care, Neurosurgery, and Orthospine" to start anti-coagulation because they "considered [the procedure] medically indicated despite that risk."[23] Mr. al-Tamir later developed a further complication; yet, despite that, "no acute medical intervention [is] required at this time."

6. ~~(U)~~ Law and Argument.

~~(U)~~ As in military and civilian courts, experts must be provided to military commissions defendants as a matter of due process and access to counsel.[24] The Rules for Military Commissions provide that "[t]he defense shall have reasonable opportunity to obtain witnesses and other evidence as provided in these rules."[25] This applies both to the merits as well as to sentencing.[26] Explaining what constitutes a "reasonable opportunity to obtain witnesses and other evidence," the Military Commissions Act of 2009 states that "[t]he opportunity to obtain

[20] ~~(U)~~ Attachment H.
[21] ~~(U)~~ Attachment I.
[22] ~~(U)~~ Attachment J.
[23] ~~(U)~~ *Id.*
[24] ~~(U)~~ *See, e.g., Ake v. Oklahoma,* 470 U.S. 68 (1985); *McWilliam v. Dunn*, 137 S.Ct. 1790, --- U.S. --- (19 June 2017) *United States v. Garries,* 22 M.J. 288, 290 (C.M.A. 1986); *United States v. Langston,* 32 M.J. 894, 895 (C.M.A. 1991).
[25] ~~(U)~~ RMC 703(a).
[26] ~~(U)~~ RMC 703(b).

witnesses and evidence shall be comparable to the opportunity available to a criminal defendant in a court of the United States under article III of the Constitution."[27]

~~(U)~~ Article III jurisprudence employs a "reasonable attorney" test in assessing the employment of expert consultants. The section of the United States Code governing indigent defense services states:

> ~~(U)~~ Counsel for a person who is financially unable to obtain investigative, expert, or other services necessary for adequate representation may request them in an *ex parte* application. Upon finding, after appropriate inquiry in an *ex parte* proceeding, that the services are necessary and that the person is financially unable to obtain them, the court . . . shall authorize counsel to obtain the services.[28]

Article III courts, including the D.C. Circuit, interpret the standard of authorization is met when "the defense attorney makes a timely request in which a reasonable attorney would engage such services for a client having the independent financial means to pay for them."[29] The test places great emphasis upon the representations of counsel and upon counsel's educated judgment as to how best to prepare for trial.[30] The reasonable attorney test differs from the more formulaic test utilized at courts-martial (the one employed by the Convening Authority in this and Mr. al-Tamir's other requests), in that an accused must demonstrate (1) that an expert would be of assistance to the defense; and (2) that denial of expert assistance would result in a fundamentally unfair trial.[31] Consequently, the appropriate standard for the employment of experts in military commissions cases is the "reasonable attorney" test.[32]

[27] ~~(U)~~ 10 U.S.C. § 949j; *see also* RMC 703(a), Discussion.
[28] ~~(U)~~ 8 U.S.C. 3006(e)(1).
[29] ~~(U)~~ *United States v. Anderson,* 39 F.3d 331, 334 (D.C. Cir. 1994); *see also Brinkley v. United States,* 498 F.2d 505, 510 (8th Cir. 1974) ("the trial judge should tend to rely on the judgment of the defense attorney if the latter 'makes a reasonable request in circumstances in which he would independently engage such services if his client had the financial means to support his defenses.'"), *citing United States v. Theriault,* 440 F.2d 713, 717 (5th Cir. 1971).
[30] ~~(U)~~ *United States v. McVeigh*, 954 F. Supp. 1441, 1445 (D. Colo. 1997).
[31] ~~(U)~~ *See United States v. Freeman,* 65 M.J. 451, 458 (C.A.A.F. 2008). At courts-martial, to establish that an expert

~~(U)~~ Additionally, the appointment of an expert consultant is protected by the attorney-client and attorney work-product privileges.[33] The consultant is available to "advise the accused and her counsel as to the strength of the government case and suggest questions to be asked of prosecution witnesses, evidence to be offered by the defense, and arguments to be made."[34] Designation as a person within the Defense privilege is important because:

> ~~(U)~~ The expert often will receive confidential communications from the accused and her counsel; and he may have occasion to learn about the tactics the defense plans to employ. If the expert consultant were free to disclose such information to the prosecutor prior to trial, a defense counsel would be placed at a great disadvantage. Indeed, he might hesitate to consult with the expert. The result would be impairment of the accused's right to counsel, because her attorney would be inhibited in the performance of her duties and unable fully to utilize the assistance contemplated by *Ake*.[35]

Finally, the Supreme Court has emphasized that, to satisfy the Constitution, an appointed expert must be "sufficiently available to the defense and independent from the prosecution to effectively 'assist in evaluation, preparation, and presentation of the defense.'"[36]

A. ~~(U)~~ The Defense's Request for the Appointment and Funding of Dr. Cobey as an Independent Defense Expert Consultant Meets the Reasonable Attorney Standard as Applied in Article III Courts.

~~(U)~~ In making a competency determination, the Commission may not rely solely on the Government's unilateral assertions about Mr. al-Tamir's physical competence, whether those

would be of assistance to the defense, the defense "must show: (1) why the expert assistance is needed; (2) what the expert assistance would accomplish for the accused; and (3) why the defense counsel were unable to gather and present the evidence that the expert assistance would be able to develop." *United States v. Breshnahan,* 62 M.J. 137 (C.A.A.F. 2005); *see also Freeman,* 65 M.J. at 458.

[32] ~~(U)~~ *See generally* AE 086 Defense Motion To Require the Convening Authority to Accept Ex Parte Requests for Expert Assistance and Other Resources at 7-9 (explaining the significance of Congress's inclusion of the "comparable to the opportunity available to a criminal defendant in a court of the United States under article III" standard in the MCA while omitting it from the UCMJ); AE 086B Defense Reply to Government Response to Motion To Require the Convening Authority to Accept Ex Parte Requests for Expert Assistance and Other Resources at 3-5 (same).

[33] ~~(U)~~ Military Commission Rule of Evidence (MCRE) 502.

[34] ~~(U)~~ *United States v. Turner*, 28 M.J. 487, 488-89 (C.M.A. 1989).

[35] ~~(U)~~ *Turner*, 28 M.J. at 489, *citing Ake,* 470 U.S. at 84-85.

[36] ~~(U)~~ *McWilliams*, 137 S.Ct. at 1793.

assertions are made by Government counsel or Government medical personnel. Physical competence to stand trial is a legal issue requiring findings of fact by the tribunal, not a medical finding.[37] As such, it requires an adversarial proceeding before the Commission can make a finding. The Supreme Court has held that "[w]here the evidence raises a 'bona fide doubt' as to a defendant's competence to stand trial," failure to hold an evidentiary hearing on the question violates the defendant's right to a fair trial.[38] That right includes the accused's "opportunity to introduce expert testimony on the question of his [competence]."[39]

~~(U//FOUO)~~ In this circumstance where Mr. al-Tamir has undergone multiple significant and emergent surgeries that implicate the appropriateness of the medical care he has received over the bulk of the time he has been held in United States custody, it is axiomatic that the Defense must be afforded consultation with a Defense medical expert to provide even the most minimal effective representation to Mr. al-Tamir. In fact, the Government itself is relying on the experience of Government medical providers within the fields of Pulmonary/Critical Care, Neurosurgery and Orthospine to update the Defense and inform the Commission. The JTF Commander, via these Government medical provider opinions, makes statements indicating Mr.

[37] ~~(U)~~ *See e.g. United States v. Schaffer*, 433 F.2d 928, 930 (5th Cir. 1970) ("Competence to stand trial, however, involves questions of fact, and findings in this regard by the District Judge are reversible on appeal if clearly erroneous").[37] *See also e.g. United States v. Landsman*, 366 F.Supp. 1027, 1027-28 (S.D.N.Y. 1973) (three court-appointed doctors and three defendant-retained doctors submitted reports on defendant's physical status; "Because the conclusions set forth in these reports are in conflict, this Court ordered a competency hearing on both the issue of physical and mental competency."); *United States v. Gigante*, 987 F.Supp. 143 (E.D.N.Y. 1996) (evidentiary hearing on physical and mental competence). Parallel military practice under Rule for Courts-Martial 909 similarly recognizes that, even where a Rule 706 Board has made a finding of competence, ultimate responsibility for a competency determination rests squarely with the military judge, who must hold an evidentiary hearing under Rule 909 where there is prima facie evidence that the accused is incompetent. "The military judge is ultimately responsible for the determination of an accused's competence to stand trial. If an R.C.M. 706 board concludes that an accused is incompetent to stand trial, the board's conclusion is not the end of the matter. The military judge must conduct a hearing to determine the accused's competence. . . . . If the board concludes the accused is competent, the military judge likewise retains responsibility to determine the accused's competence." *United States v. Usry*, 68 M.J. 501, 507 (U.S.C.G.C.C.A. 2009); *see also United States v. Collins*, 60 M.J. 261, 267 (C.A.A.F. 2004).

[38] ~~(U)~~ *Pate v. Robinson*, 383 U.S. 375, 385 (1966). *Pate* concerned mental competence; however, courts apply the same requirement to physical competence. *See e.g. Schaffer*, 433 F.2d at 930 (physical competence; citing *Pate*).

[39] ~~(U)~~ *Pate*, 383 U.S. at 385 n.7.

al-Tamir's condition is "a recent medical emergency"[40] which the Government "treated consistent with accepted medical standards"[41] and from which Mr. al-Tamir is "recovering as expected . . . [and for which] No other acute medical intervention is required at this time."[42] The complications Mr. al-Tamir suffered are documented as "known complication[s]" or "a known risk in the post-operative period" for which a decision was made by the Government's medical experts to start anti-cogulation despite the known risks.[43]

~~(U)~~ The Commission cannot determine whether Mr. al-Tamir can participate in his own defense or is otherwise fit to stand trial without findings of fact. These findings of fact will necessarily include the opinions of the Government's many medical professionals. Therefore, the appointment and funding of Dr. Cobey will assist the Defense in presenting evidence this Commission needs in an adversarial proceeding to effectively evaluate the care Mr. al-Tamir is receiving and whether he is fit to participate in his own defense. To accept the Government's medical providers' opinions and deny the Defense its expert will violate all notions of fundamental fairness because, by denying the expert, this Commission runs the risk of prosecuting Mr. al-Tamir when he is not fit to stand trial or capable of participating in his own defense. And, in a criminal case, there is nothing more fundamentally unfair than prosecuting someone who cannot defend himself or is otherwise physically unfit to stand trial.

B. ~~(U)~~ The Convening Authority Misapplied the Law in Evaluating the Defense's Request.

~~(U)~~ As noted above and in AE 086 and AE 090,[44] the correct standard for reviewing requests for expert assistance in military commission cases is one comparable to Article III court

[40] ~~(U)~~ Attachment F.
[41] ~~(U)~~ *Id.*
[42] ~~(U)~~ *Id.*
[43] ~~(U)~~ *Id.*; Attachment J.
[44] ~~(U)~~ Defense Motion To Require the Convening Authority to Accept *Ex Parte* Requests for Expert Assistance and

practice.[45] Therefore, the Convening Authority's reliance on *United States v. Gunkle*[46] is misplaced. Additionally, in concluding that the Defense did not show Dr. Cobey's necessity, the Convening Authority fails to recognize that the determination of Mr. al-Tamir's fitness as it relates to the further Commission's proceedings is a legal determination subject to the adversarial process as highlighted *supra*. Finally, the Convening Authority also fails to recognize the Defense's duty to challenge the adequacy of Mr. al-Tamir's medical treatment while in U.S. custody if raised by the evidence and the necessity of expert consultation to properly evaluate the appropriateness of such a challenge.

~~(U)~~ More importantly, even if the Commission applies the *Gunkle* standard, the Convening Authority is still required to appoint and fund Dr. Cobey. Under *Gunkle*, to demonstrate the necessity for expert assistance, an accused must show: (1) why the expert assistance is needed; (2) what the expert assistance would accomplish for the accused; and (3) why the defense counsel is unable to gather and present the evidence that the expert assistance would be able to develop.[47] In this case, Mr. al-Tamir has satisfied all three *Gunkle* prongs.

~~(U)~~ In answer to the first two *Gunkle* prongs, to effectively represent Mr. al-Tamir the Defense is obligated to fully explore and evaluate the totality of medical circumstances that resulted in Mr. al-Tamir undergoing three emergency surgeries in less than three weeks. Additionally, the Defense must fully understand Mr. al-Tamir's ongoing medical condition to thoroughly evaluate his ability to participate in his own defense as well as his fitness to stand trial. Dr. Cobey's expert assistance is necessary for the Defense to effectively fulfill those

~~(U)~~ Other Resources.
[45] ~~(U)~~ *See* 18 U.S.C. 3006(e)(1); *and see United States v. Anderson,* 39 F.3d at 334.
[46] ~~(U)~~ 55 M.J. 26 (C.A.A.F. 2001).
[47] ~~(U)~~ *Id.* at 32.

obligations just as the Government's many medical professionals from the fields of Pulmonary/Critical Care, Neurosurgery, and Orthospine are necessary for its position.

~~(U)~~ To address the final *Gunkle* prong, the Defense is unable to gather relevant evidence on these issues and present it to the Commission without Dr. Cobey's assistance. Dr. Cobey is an orthopedic surgeon with extensive experience performing spine surgery for over 30 years. He received his medical degree from the Johns Hopkins School of Medicine, and his master of public health at the Johns Hopkins Bloomberg School of Public Health, focusing on international health. Dr. Cobey served in the U.S. Army as chief of the Preventive Medicine Service at Fort Lewis, Washington (1971 - 1973), attaining the rank of Major and receiving the Meritorious Service Medal. He completed his orthopedic residency in 1976 at Yale University. Dr. Cobey shared in the Nobel Peace Prize in 1997 for his role in the International Campaign to Ban Land Mines and has extensive experience consulting on health issues with international refugee and human rights agencies.[48]

~~(U)~~ No member of the Defense is medically trained, much less an orthopedic surgeon with over thirty years' experience. No member of the Defense has the education, training, or experience to evaluate Mr. al-Tamir's medical treatment and current condition without Dr. Cobey's assistance. And no members of the Defense, absent Dr. Cobey's assistance, has the requisite skill to present argument to the Commission regarding the reliability of the information the Government puts forth regarding Mr. al-Tamir's medical condition. Therefore, even if the Commission were to apply the inapposite *Gunkle* test, Dr. Cobey's assistance would be determined necessary.

[48] ~~(U)~~ Attachment C.

C. ~~(U)~~ Terms of Appointment

~~(U)~~ The Defense estimates Dr. Cobey will require a maximum of 30 hours to consult on Mr. al-Tamir's case. The Defense requests that he be paid at the rate of $150/hour, a rate that is very substantially below his normal professional fee. Pending approval, and to assist in the Commission's efficient processing of the case, he is working for the Defense on a pro bono basis.

7. ~~(U)~~ Conclusion.

~~(U)~~ For the foregoing reasons, the Defense requests an expedited order for the Convening Authority to appoint and fund Dr. Cobey on the above terms.

8. ~~(U)~~ Oral Argument.

~~(U)~~ In the interest of expediting the decision, the Defense waives oral argument.

9. ~~(U)~~ Witness and Evidence.

~~(U)~~ The Defense does not intend to present witness testimony or evidence not attached to this Motion.

10. ~~(U)~~ Conference with Opposing Counsel.

~~(U)~~ The Defense conferred with the Government. The Government stated that it, "objects to the motion to compel appointment of a medical expert to assist the Defense in evaluating the Accused's physical competency to participate in his defense."

11. ~~(U)~~ List of Attachments.

A. ~~(U)~~ Certificate of Service, dated 6 October 2017.

B. ~~(U)~~ Memorandum for the Convening Authority re: Emergency Request for Expert Assistance – Neurological Surgery, dated 1 September 2017.

C. ~~(U)~~ Curriculum vitae of Dr. James Cobey.

D. ~~(U)~~ Letter from Dr. James Cobey, dated 5 September 2017.

E. ~~(U)~~ Miami Herald article, dated 7 September 2017.

F. ~~(U)~~ Undated Memorandum from Commander, JTF-GTMO.

G. ~~(U)~~ Memorandum from Commander, JTF-GTMO, dated 20 September 2017.

H. ~~(U)~~ Emails between Defense counsel and SOUTHCOM from 1 and 2 October 2017.

I. ~~(U)~~ Memorandum from the Convening Authority denying Defense request for expert consultant, dated 18 September 2017.

J. ~~(U)~~ Memorandum from Commander, JTF-GTMO, dated 3 October 2017.

Respectfully Submitted,

//s//
BRENT RUSHFORTH
Pro Bono Counsel

//s//
JEFFREY A. FISCHER
CAPT, JAGC, USN
Detailed Defense Counsel

//s//
AIMEE M. COOPER
CDR, JAGC, USN
Detailed Defense Counsel

//s//
ADAM THURSCHWELL
Assistant Defense Counsel

Attachment A

(U) CERTIFICATE OF NOTICE

~~(U)~~ I certify that on **6 October 2017**, I filed **AE 103 Defense Motion** to Compel Appointment and Funding of Defense Expert on an Expedited Basis and served a copy of the same on Government counsel of record and the Convening Authority.

//s//
Jeffrey A. Fischer
CAPT, JAGC, USN
Detailed Defense Counsel

Attachment B

DEPARTMENT OF DEFENSE
MILITARY COMMISSIONS DEFENSE ORGANIZATION
1620 DEFENSE PENTAGON
WASHINGTON, DC 20301-1620

1 September 2017

MEMORANDUM FOR THE CONVENING AUTHORITY

SUBJECT: Emergency Request for Expert Assistance – Neurological Surgery

Mr. Nashwan al-Tamir (ISN 10026), the Accused in the case of *United States v. Abd Al Hadi Al Iraqi*, by and through counsel, respectfully requests the Convening Authority appoint and fund James C. Cobey, MD, MPH, an expert consultant in the field of orthopedic surgery, to ensure Mr. al-Tamir can participate in his defense and is physically fit to stand trial.

Overview

This is an emergency request. Mr. al-Tamir must prepare for scheduled 2-6 October 2017 pretrial hearings, but is experiencing debilitating back pain and other emergent symptoms that are preventing him from focusing on his case or engaging in meaningful communication his defense counsel. His defense counsel have been aware of Mr. al-Tamir's chronic back ailment for some time, as have the Prosecution and the Commission. Defense counsel have witnessed, however, a steady deterioration in Mr. al-Tamir's health over the past two months and now face what appears to be a medical emergency. Yesterday, defense counsel consulted with several experts and learned for the first time that Mr. al-Tamir's symptomology requires immediate attention and that, if he is not treated properly and immediately, he could suffer irreparable harm including paralysis.

Immediately before the August 2017 pretrial hearings, JTF-GTMO declared Mr. al-Tamir medically unfit to attend attorney-client meetings. Although he was later cleared to meet with his defense counsel, his pain has consistently prevented him from participating in his defense since before the August hearings. Since the August hearings, the situation has become dire. Mr. al-Tamir is losing sensation in his legs and is experiencing the loss of muscle control/motor skills. He periodically loses control of his bladder.

The Defense has sought the preliminary opinion of Dr. Cobey, an orthopedic surgeon. In Dr. Cobey's opinion, this rapid decline in health and associated symptomology demands immediate action. He has informed us:

> These symptoms suggest compression of the spinal cord and/or spinal nerves and require immediate diagnostic imaging and surgical intervention by an experienced neurosurgeon or orthopedic surgeon. Based on these symptoms, there is an urgent need for diagnostic testing and surgical intervention. While MRI is the preferred imaging technique, a CAT scan can also be performed in conjunction with a myelogram to ascertain the nature and extent of compression. High dose corticosteroids should also be considered to reduce inflammation associated with presumed spinal compression.

SUBJECT: Emergency Request for Expert Assistance – Neurological Surgery

> The current treatment plan as reported, consisting of an anesthesiologist visiting in September and a neurosurgeon visiting in October, is unacceptable, inconsistent with the standard of care, and likely to result in permanent neurologic damage. I would not expect a simple epidural injection with steroids to have any real effect on a compression problem.[1]

Dr. Cobey concludes, "I urge you in no uncertain terms to take immediate action to effectively diagnose and treat the detainee's medical emergency."[2]

Because Mr. al-Tamir is unable to participate in his defense and may be physically unfit to stand trial, the Convening Authority must appoint and fund Dr. Cobey to consult with the Defense. If the United States is unable to render due medical care to Mr. al-Tamir in Guantanamo Bay, the Convening Authority and JTF-GTMO should be prepared to transfer Mr. al-Tamir to a location where he may receive the medical attention required for him to continue to participate in his defense. Because time is of the essence, the Defense intends to file a motion for emergency relief from the Commission at the earliest opportunity.

Case Posture

Mr. al-Tamir's case is in the pretrial phase. During this phase and throughout the case, Mr. al-Tamir has a right to participate in in the preparation of his defense. Issues currently pending before the Commission include a variety of areas in which Mr. al-Tamir's participation is critical. Similarly, outside of court, Mr. al-Tamir must be well enough to participate in attorney-client meetings. The Defense is in the early stages of conducting merits and mitigation investigations, both of which require significant consultation between Mr. al-Tamir and members of his defense team.

Pretrial hearings in the case are scheduled for 2-6 October 2017. Among other issues, these hearings will focus on the remaining procedural steps required before a cross-examination of Ahmed al-Darbi, a Prosecution witness who recently gave deposition testimony under direct-examination. The prerequisites to the cross-examination, and the cross-examination itself, must occur as soon as possible, as the Convening Authority has entered into a contract to release Mr. al-Darbi from Guantanamo Bay in February 2018, at which point, according to the Prosecution, Mr. al-Darbi will no longer be an available witness.

If the Convening Authority refuses to appoint and fund Dr. Cobey, Mr. al-Tamir will be unable to assist Defense counsel in preparing for cross-examination of Mr. al-Darbi and is likely to be medically unable to attend the cross-examination, resulting in a delay in the proceedings. Such a delay could deny Mr. al-Tamir the ability to cross-examine Mr. al-Darbi altogether. Time is of the essence.

[1] Enclosure A (Letter from Dr. James Cobey dated 1 September 2017).
[2] *Id.*

SUBJECT: Emergency Request for Expert Assistance – Neurological Surgery

Mr. al-Tamir's Medical Status

As documented in his medical records, Mr. al-Tamir has sought treatment for chronic and worsening back pain since 2006.[3] In 2007, Mr. al-Tamir presented low back pain and right side sciatica, resulting in a diagnosis of degenerative disc disease between the L4 and L5 vertebrae.[4] A computerized tomography scan ("CT scan") confirmed the diagnosis.[5]

In 2008, Mr. al-Tamir was seen for recurring back pain that was, at that point, deemed chronic. Doctors noted in medical records: "Detainee seemed unsteady while standing."[6] By June of 2008, Mr. al-Tamir's back pain had increased to include pain that radiated down his left thigh.[7] By August 2008, doctors noted: "Detainee expressed concern about current back pain and length of time" it has taken to resolve the issue.[8]

Mr. al-Tamir continued to seek treatment through 2008 and into 2009. In August 2009, he reported flare-ups and pain that affected the left side of his body, to include pain radiating from his back to his thighs. Medical providers performed various diagnostic tests but failed to cure the ailment or the pain. X-rays and CT scans continued to show degenerative disc disease.[9]

In early 2010, a bulging mass was identified on the left side of Mr. al-Tamir's spine.[10] Doctors performed a biopsy on the soft tissue mass. Pathology reports were negative.[11] The mass remains today.

Throughout 2010, Mr. al-Tamir continued to be seen for chronic back pain. In June 2010, he again reported pain that ran down left side of his leg.[12] Throughout 2010, he received physical therapy, traction table therapy, and regular treatments with a Transcutaneous Electrical Nerve Stimulator unit.[13] These therapies and treatments were ineffective.

In September 2010, Mr. al-Tamir's medical records reflect he was diagnosed with spinal stenosis. Spinal stenosis is an abnormal narrowing of the spinal canal. The narrowing of the spine causes a restriction to the spinal canal which, aside from pain, can result in neurological deficits such numbness and loss of motor control.[14] It was at this point, seven years ago, that a doctor first proposed the possibility of surgery.[15]

[3] Enclosure D [redacted]
[4] Enclosure D
[5] Enclosure D
[6] Enclosure D
[7] Enclosure D
[8] *Id.*
[9] Enclosure D [redacted]
[10] Enclosure D
[11] Enclosure D
[12] Enclosure D
[13] Enclosure D
[14] http://www mayoclinic.org/diseases-conditions/spinal-stenosis/home/ovc-20320403.
[15] Enclosure D [redacted]

SUBJECT: Emergency Request for Expert Assistance – Neurological Surgery

In November 2011, Mr. al-Tamir was again diagnosed with lumbar spine disc herniation and spinal stenosis. During this timeframe, Mr. al-Tamir reported pain radiating to his right buttock.[16]

Throughout the remainder of 2011 and 2012, Mr. al-Tamir was seen for chronic low back pain. In January 2012, Mr. al-Tamir again reported low back pain radiating to his left knee.[17] In September 2012, he again reported sharp pain radiating from his back toward his left knee.[18] At this point doctors ordered further testing, but it is not clear from the medical records whether that testing was performed.[19]

Mr. al-Tamir's back pain persisted and his health gradually declined throughout 2012. In November 2012, he continued to report radiating pain from his low back down through his thighs, but, for the first time, reported feeling "pins and needles sensations" in his toes."[20]

Mr. al-Tamir continued to suffer from back pain between 2013 and 2017, but, despite multiple requests for information and records, the Prosecution has failed to provide complete medical discovery—a failure that has contributed to the Defense not understanding the severity of Mr. al-Tamir's situation until recently. Last week, on August 25, 2017, the Defense received a smattering of random medical records from 2007, 2013, 2014, 2016 and 2017. To date, the Prosecution has not produced a comprehensive set of Mr. al-Tamir's medical records. The Defense has not received any medical records from 2015, very few records from 2016, and one CT scan exam result from January 2017 that was not produced until August 25, 2017.

A January 2017 lumbar CT scan (without contrast) of Mr. al-Tamir's spine showed anterior wedging of T12 and L1 and anterolosthesis on L4 and L5, which had increased since the previous CT scan. Additionally, there were degenerative changes to L4-S1. It was at this time, a decade into Mr. al-Tamir's ordeal, that an MRI was first proposed.[21]

Mr. al-Tamir's declining health continued to degrade. In August 2017, he began to experience an increase in the loss of sensation in both feet. The week of August 7, 2017, during attorney-client meetings in preparation for the August pretrial hearings, Mr. al-Tamir began to feel tingling throughout his body.. He began experiencing an increased loss of sensation in both hands and both legs, as well as an increase in his muscle weakness. During this period, Mr. al-Tamir described to his defense counsel that his feet felt heavy and weighed down. He also described an increase in the level, sharpness, and frequency of his pain.

At an attorney-client meeting on August 9, 2017, defense counsel noticed Mr. al-Tamir open and close his left hand repeatedly during the six-hour meeting. Mr. al-Tamir explained that his hand was numb and he was opening and closing it in an attempt to force feeling back into it. By that evening, Mr. al-Tamir's legs had become so weak that he could not stand up straight or walk.

[16] Enclosure D [redacted]
[17] Enclosure D
[18] Enclosure D
[19] Enclosure D
[20] Enclosure D
[21] Enclosure D

SUBJECT: Emergency Request for Expert Assistance – Neurological Surgery

On August 10, 2017, a doctor examined Mr. al-Tamir at his detention location. The doctor determined that Mr. al-Tamir's deteriorating condition required transportation to the hospital for additional tests. Some tests were conducted, but, apparently, a prescribed CT scan could not be performed because the hospital staff failed to properly inject intravenous contrast dye for the scan. Following this hospital visit, Mr. al-Tamir was declared medically unfit for attorney-client meetings.

Although his condition did not improve, JTF-GTMO cleared Mr. al-Tamir to attend the 14-17 August pretrial hearings. Due to his constant discomfort and concern over bladder control, he attended only one day of the session—a day his presence was required by the military judge.

When permitted, Mr. al-Tamir now uses a wheelchair when necessary to move within his detention facility. On at least one occasion, he has been denied the use of a wheelchair without explanation. He does not feel well enough to attend attorney-client meetings, which occur at Echo II, a facility he must reach by car. Transportation to Echo II—or anywhere—is painful, and the facility is not wheelchair accessible.

As of the date of this request, Mr. al-Tamir's condition has not improved and his health continues to decline daily. His condition has compromised his ability to participate in his own defense. If his pain is not sufficiently relieved before the scheduled October pretrial hearings, the Defense will file a motion to abate.

JTF-GTMO staff have indicated to Mr. al-Tamir that he will be offered two forms of treatment in the coming months: on September 12, he will receive steroid injections into his back; and on October 2, a neurosurgeon will conduct an examination.

Expert Assistance is Necessary

Expert assistance is necessary because Mr. al-Tamir's pain denies him from participating in his defense, and JTF-GTMO has demonstrated itself incapable of treating Mr. al-Tamir's condition. Dr. Cobey must be appointed to consult with the Defense regarding why Mr. al-Tamir is suffering his pain and other symptoms and whether a remedy exists that would permit him to resume participation in his case.

No member of the Defense is qualified to assess Mr. al-Tamir's medical condition. It goes without saying that spinal problems require assessment and treatment by medical specialists. The urgency of Mr. al-Tamir's condition, however, was not apparent to defense counsel until a consultation with independent experts. According to an independent assessment of Mr. al-Tamir's symptoms by Dr. Homer Vinters and Dr. Vince Iacopino of Physicians for Human Rights, Mr. al-Tamir's condition could result in permanent neurologic damage and/or paralysis if not diagnosed and treated immediately.[22]

JTF-GTMO medical staff have failed to eliminate Mr. al-Tamir's ailment or symptoms, leaving him facing a trial in which he cannot participate. Whatever the reason for JTF-GTMO's failure, no member of the Defense can sufficiently comprehend Mr. al-Tamir's medical status and, if necessary, explain it to the Commission. Therefore, expert assistance is required.

[22] Enclosure B (Letter from PHR dated 31 August 2017).

SUBJECT: Emergency Request for Expert Assistance – Neurological Surgery

Although not medical experts, in addition to consulting with Drs. Vinters and Iacopino, defense counsel have conducted sufficient research to establish that JTF-GTMO's past treatment (conservative, non-surgical treatment) and proposed course of action (a steroid injection later in September, followed by a consultation with a neurosurgeon in October) have been and will be insufficient, if not harmful.

A conservative treatment regimen including pain relievers, anti-inflammatories, steroid injections, physical therapy, stretching exercises and decompression procedures are appropriate initial responses to chronic back pain.[23] When patients fail to respond to conservative treatment within *six weeks* of presenting symptoms, however, current medical literature supports surgical intervention as an appropriate treatment option to relieve symptoms and restore function.[24]

Moreover, patients who initially present with an acute episode of lumbar radiculopathy can generally be managed by a primary care practitioner. However, once a patient exhibits certain red flags, such as sensory or motor deficits, progressive neurologic deterioration or saddle anesthesia with bowel and bladder incontinence, a patient must be referred to a spinal surgeon. Patients with severe or progressive neurologic deficits *require* a referral for surgery.[25]

Sensory abnormalities in the genitals coupled with loss of bladder control and progressive loss of sensation or motor function in the legs are ominous signs that warrant urgent evaluation and treatment. Mr. al-Tamir has complained of sensory abnormalities in the genitals and loss of bladder control.

Mr. al-Tamir has received years of conservative and ineffective treatments. In addition to physical therapies, Mr. al-Tamir has been prescribed a multitude of medications. After ten years and the myriad conservative treatments attempted, it is clear even to lay attorneys capable of reading medical journals that conservative treatment options have been exhausted. During this period, the Government has allowed Mr. al-Tamir's condition to degenerate to the point where he now has sensory abnormalities in the genitals coupled with loss of bladder control and progressive loss of sensation and motor function in his legs.

Dr. Cobey has reviewed the above information and formed an initial assessment that (1) Mr. al-Tamir cannot currently engage in the activities required to meaningfully participate in his defense; (2) the standard of care requires an immediate MRI; (3) the delay to an examination by a neurosurgeon is below the standard of care; and (4) the proposed steroid injection may be contraindicated. Dr. Cobey requires more information and an opportunity to assess it before forming a full medical opinion and advising the Defense regarding a proper course of treatment and Mr. al-Tamir's ability to participate in his defense and physical fitness to stand trial.[26]

[23] Enclosure C.
[24] *Id.*
[25] *Id.*
[26] Enclosure A.

SUBJECT: Emergency Request for Expert Assistance – Neurological Surgery

Expert Qualifications, Contact Information and Rate

Dr. Cobey is an orthopedic surgeon with extensive experience performing spine surgery for over 30 years. He received his medical degree from the Johns Hopkins School of Medicine, and his master of public health at the Johns Hopkins Bloomberg School of Public Health, focusing on international health. Dr. Cobey served in the U.S. Army as chief of the Preventive Medicine Service at Fort Lewis, Washington (1971 - 1973), attaining the rank of Major and receiving the Meritorious Service Medal. He completed his orthopedic residency in 1976 at Yale University. Dr. Cobey shared in the Nobel Peace Prize in 1997 for his role in the International Campaign to Ban Land Mines and has extensive experience consulting on health issues with international refugee and human rights agencies.[27]

Dr. Cobey's contact information is:

James C. Cobey, MD, MPH, FACS
Johns Hopkins Bloomberg School of Public Health
4440 Garfield Street
Washington, DC 20007
cobey@att.net

The Defense estimates Dr. Cobey will require a maximum of 30 hours to consult on Mr. al-Tamir's case. The Defense has not yet had the chance to discuss Dr. Cobey's hourly rate with him but, will supply that information at the earliest possible time. We anticipate that it will be consistent with the hourly rates previously approved by the Convening Authority or military commissions for expert medical consultation.

This request is not a request for expert testimony. If Dr. Comey is required to testify, Mr. al-Tamir will submit an additional request.

Conclusion

Mr. al-Tamir has a constitutional right to participate in his defense. His current severe back pain and other debilitating symptoms deny him the ability to do so. The Defense requires an expert consultant to assess Mr. al-Tamir's medical status, something the Defense is not capable doing of without expert assistance.

Additionally, failure to provide Mr. al-Tamir adequate medical care is a violation of the Eighth Amendment. The Government, as the detaining authority, is obliged to provide medical care for those it detains.[28] A detainee is completely dependent on detention facility medical officials for any and all medical care.[29] Denial of medical care that results in pain and suffering that does not serve any penological purpose amounts to cruel and unusual punishment under the Eighth Amendment.[30]

[27] Because of the sudden emergency situation from which this request arises and the holiday weekend, we have not yet been able to obtain a curriculum vitae for Dr. Cobey, but will supply one as soon as we receive it.
[28] See *Estelle v. Gamble*, 429 U.S. 97, 103 (1976).
[29] *Id.*
[30] *Gregg v. Georgia*, 428 U.S. 153, 183 (1976).

SUBJECT: Emergency Request for Expert Assistance – Neurological Surgery

If any additional information is required to process this request, please contact the undersigned at (703) 695-4882 or aimee.cooper[redacted]

Respectfully submitted,

Aimee M. Cooper
CDR, JAGC, U.S. Navy
Defense Counsel
Military Commissions Defense Organization

Enclosures:
A. Letter from James C. Cobey, MD, MPH, FACS, dated 1 September 2017.
B. Letter from Drs. Homer Venters and Vincent Iacopino, dated 31 August 2017.
C. Articles from Medical Journals and Medically sponsored websites
D. [redacted]

Enclosure A

September 1, 2017

Defense Counsel:

I am an orthopedic surgeon with extensive experience performing spine surgery for over 30 years. I am writing to express urgent medical concerns regarding your client, who has a history of back pain and leg numbness and recently reported increasing lower extremity weakness and bladder incontinence.

These symptoms suggest compression of the spinal cord and/or spinal nerves and require immediate diagnostic imaging and surgical intervention by an experienced neurosurgeon or orthopedic surgeon. Based on these symptoms, there is an urgent need for diagnostic testing and surgical intervention. While MRI is the preferred imaging technique, a CAT scan can also be performed in conjunction with a myelogram to ascertain the nature and extent of compression. High dose corticosteroids should also be considered to reduce inflammation associated with presumed spinal compression.

The current treatment plan as reported, consisting of an anesthesiologist visiting in September and a neurosurgeon visiting in October, is unacceptable, inconsistent with the standard of care, and likely to result in permanent neurologic damage. I would not expect a simple epidural injection with steroids to have any real effect on a compression problem.

I urge you in no uncertain terms to take immediate action to effectively diagnose and treat the detainee's medical emergency.

Sincerely,

James C. Cobey, MD, MPH, FACS
Johns Hopkins Bloomberg School of Public Health
4440 Garfield Street
Washington, DC 20007

Enclosure B

Through evidence, change is possible.

Physicians for Human Rights

256 West 38th Street
9th Floor
New York, NY
10018

+1.646.564.3720
phr.org

August 31, 2017

To Whom It May Concern:

Physicians for Human Rights has learned from the Military Commissions Defense Organization that a detainee at Guantánamo Bay Detention Center complains of progressive back pain, bladder incontinence, and loss of motor and sensory function in his legs which has recently resulted in an inability to walk. The following description was shared with us today:

> *He's had back problems for years, but it has gotten dramatically worse over the past few months. He sometimes loses feeling in both of his legs; he has lost 90% of the feeling in left leg; his motor control is deteriorating; and he periodically loses control of his bladder. Last week, he was finally given a walker, but he is now unable to use it due to the loss of sensation in his legs.*

These symptoms, if accurate, are consistent with serious neurologic impairment that may be permanent if not diagnosed and treated promptly. Based on the reported symptoms, there is a possibility of cauda equina syndrome, which could result in permanent neurologic damage and/or paralysis if not diagnosed and treated immediately.

Cauda equina syndrome requires emergency diagnosis and MRI, and evaluation by a neurosurgeon for therapeutic intervention, which typically consists of high-dose corticosteroids and surgery.

We urge the authorities to be in immediate contact with medical staff so they can act in a timely manner consistent with the standard of care.

Sincerely,

Homer Venters, MD, MS
Director of Programs
Physicians for Human Rights

Vincent Iacopino, MD, PhD
Senior Medical Advisor
Physicians for Human Rights

Enclosure C

The NEW ENGLAND JOURNAL of MEDICINE

CLINICAL PRACTICE
Caren G. Solomon, M.D., M.P.H., Editor

Herniated Lumbar Intervertebral Disk

Richard A. Deyo, M.D., M.P.H., and Sohail K. Mirza, M.D., M.P.H.

N Engl J Med 2016; 374:1763-1772 May 5, 2016 DOI: 10.1056/NEJMcp1512658

Article

See Key Clinical Points

This *Journal* feature begins with a case vignette highlighting a common clinical problem. Evidence supporting various strategies is then presented, followed by a review of formal guidelines, when they exist. The article ends with the authors' clinical recommendations.

A 41-year-old man reports the sudden onset of low back and left leg pain. The symptoms began while he was doing yard work and pulling out large bushes. Since the onset of the pain 2 days ago, it has worsened, although he took a single dose of ibuprofen when the pain began. The patient has no clinically significant medical history, and the physical examination is normal other than severe pain in the left leg with a straight-leg-raising maneuver to 40 degrees. He says, "I'm sure I slipped a disk," and he requests magnetic resonance imaging (MRI) of the low back. What testing and treatment would you recommend?

Low back pain and leg pain are common symptoms. Two thirds of adults have back pain at some time in their lives, and approximately 10% of adults report back pain that has spread to below the knees within the previous 3 months.[1,2] "Sciatica" refers to pain in a sciatic-nerve distribution, but this term is sometimes used indiscriminately to describe back and leg pain. Lumbar "radiculopathy" more specifically refers to pain with possible motor and sensory disturbances in a nerve-root distribution. After lumbar stenosis, spondylolisthesis, and fracture have been ruled out, approximately 85% of patients with sciatica are found to have a herniated intervertebral disk.[3]

Herniated Lumbar Intervertebral Disk

- Herniated lumbar disks are the leading cause of sciatica, but they also are detected on imaging (MRI or CT) in asymptomatic persons.
- The natural history of herniated lumbar disks is favorable. One study showed that without surgery, pain decreases in approximately 87% of patients within 3 months.
- MRI or CT is indicated in patients with persistent sciatica that lasts 4 to 6 weeks and in whom epidural glucocorticoid injections or surgery are being considered.
- Oral medications and supervised exercise provide slight relief of symptoms. Epidural glucocorticoid injections are an option for patients with severe persistent sciatica, but they do not reduce rates of subsequent surgery.
- Patients with severe or progressive neurologic deficits require a referral for surgery. Elective surgery is an option for patients with congruent clinical and MRI findings and a condition that does not improve within 6 weeks. The major benefit of surgery is relief of sciatica that is faster than relief with conservative treatment, but results of early surgical and prolonged conservative treatment tend to be similar at 1 year of follow-up. Patients and physicians should share in decision making.

Herniation, which refers to displacement of intervertebral disk material beyond the normal margins of the disk space, was initially described as disk "rupture."[4] The disk material may include elements of the nucleus pulposus, annulus fibrosus, or both. Symptomatic herniation most often occurs in the posterolateral aspect of the disk, but midline herniations also occur. Disk-related radiculopathy appears to be both a biochemical and mechanical process. Contact of the nucleus pulposus with a nerve root provokes the inflammation that may be necessary in order for mechanical compression to cause pain.[5] Disk herniation does not necessarily cause pain; MRI commonly shows herniated disks in asymptomatic persons, and the prevalence of herniated disks increases with age.[6] Thus, symptoms may be misattributed to incidental MRI findings.

Both genetic and environmental factors may be important causes of disk herniation. Epidemiologic studies suggest that strenuous activities and cigarette smoking are risk factors.[7] Studies of familial aggregation and studies involving twins suggest that genetic factors may confer a predisposition to disk degeneration and herniation; these factors may be related to the structure of collagen and other disk elements.[8]

The natural history of herniated lumbar disks is generally favorable, but patients with this condition have a slower recovery than those with nonspecific back pain. In one study involving patients with a herniated disk and no indication for immediate surgery, 87% who received only oral analgesics had decreased pain at 3 months.[9] Even in randomized trials that enrolled patients with persistent sciatica, the condition of most patients who did not undergo surgery improved.[10,11]

The condition of patients who have motor deficits corresponding to a single nerve root (such as weakness on dorsiflexion of the foot, or foot drop) associated with herniated disks also improves over time. In one study, 81% of patients with initial paresis had recovered without surgery after 1 year.[12] Sensory deficits may be more persistent; the rate of recovery is 50% at 1 year. MRI shows shrinkage of most herniated disks over time, and up to 76% partially or completely resolve by 1 year.[13] However, recurrences of pain are common. In one study involving a cohort of persons who presented with sciatica, 25% of those whose sciatica resolved had a recurrence of symptoms within 1 year.[14]

The differential diagnosis of sciatica includes conditions other than herniated disks. These conditions include tumors, a vertebral fracture, an epidural abscess, spondylolisthesis, lumbar stenosis, a synovial cyst or cysts, and herpetic and diabetic mononeuropathies.[3] Clues to these conditions (e.g., a history of cancer or trauma or the presence of fever) are usually apparent from the history and physical examination. Back pain may precede sciatica, but the pain and paresthesia of sciatica often become dominant, and the pain typically radiates to below the knee. Often there is no specific precipitating event; a "nonsudden" onset is common.[15]

Data obtained from the patient's clinical history and physical examination are moderately accurate in establishing the diagnosis (Table 1).[15-17] The straight-leg-raising test for nerve-root compression is widely used, and it is typically considered to be positive if sciatica is reproduced by elevating the leg to between 30 and 70 degrees.[3] A positive ipsilateral straight-leg-raising test (in which the leg with sciatica is raised and pain is elicited on the side of the raised leg) is sensitive but not specific. In contrast, a positive crossed straight-leg-raising test (in which sciatica is reproduced by raising the opposite leg) is specific but not sensitive (Table 1).[17]

TABLE 1

Estimated Accuracy of Findings on Clinical Assessment for Diagnosis of Nerve-Root Compression Due to a Herniated Disk, According to Either MRI or Surgical Findings.

In two studies of surgery for sciatica, at least 95% of herniated disks were at the L4–L5 or L5–S1 levels.[10,11] Thus, neurologic examination can focus on the L5 and S1 nerve roots (Figure 1).[18]

Rarely, a massive midline disk herniation may compress the cauda equina; this is known as the cauda equina syndrome. This compression typically causes unilateral or bilateral sciatica, motor weakness, and urinary incontinence or retention. Saddle anesthesia (loss of sensation in the area of the buttocks, posterior superior thighs, and perineum) is characteristic, and anal sphincter tone may be diminished.[19]

FIGURE 1

Testing for Compromise of a Lumbar Nerve Root

Plain radiography does not show herniated disks, but it helps to rule out a tumor or fracture, infection, and spondylolisthesis. Most guidelines recommend the use of plain radiography only in patients who have a high risk of underlying systemic disease (e.g., a history of cancer) and patients who use injection drugs or receive oral or parenteral glucocorticoids.[20]

Computed tomography (CT) or MRI can confirm a clinical diagnosis of a herniated disk. Early MRI is indicated in patients with progressive or severe deficits (e.g., multiple nerve roots) or clinical findings that suggest an underlying tumor or infection (e.g., findings that indicate injection-drug use or fever). Otherwise, CT or MRI is necessary only in a patient whose condition has not improved over 4 to 6 weeks with conservative treatment and who may be a candidate for epidural glucocorticoid injections or surgery.

On imaging, disk bulging is common among asymptomatic persons (in approximately 60% of persons at 50 years of age), as is disk protrusion (in 36% of persons at 50 years of age).[6] Thus, there is a substantial risk of misleading MRI findings, and an ill-advised cascade of subsequent testing and intervention may result.[21] We therefore do not recommend the routine use of CT or MRI.

CT and MRI terminology was inconsistent in the past, but a consensus now distinguishes among disk bulging, protrusion, extrusion, and sequestration (Figure 2). The latter three terms define a herniated disk, whereas bulging does not.[22] Extrusion and sequestration are most likely to cause radicular symptoms.

FIGURE 2

CT and MRI Terminology for Herniated Disks.

Electromyography is usually unnecessary. However, it may be helpful in patients with ambiguous symptoms or findings on examination and CT or MRI.

Cohort studies suggest that the condition of many patients with a herniated lumbar disk improves in 6 weeks; thus, conservative therapy is generally recommended for 6 weeks in the absence of a major neurologic deficit. In one study, 36% of patients reported improvement in their condition at 2 weeks, and this percentage increased substantially with longer follow-up.[23] Furthermore, persistent pain after 6 weeks of conservative therapy has been the entry criterion in most randomized trials of disk surgery.[10,11]

The favorable natural history of sciatica may explain why certain treatments that have not proved to be effective in clinical trials have been perceived as being effective. For example, randomized trials have not shown that recovery from sciatica[3] or back pain[24] is faster with bed rest than with watchful waiting. Similarly, a meta-analysis of 32 randomized trials (16 of which were judged to have a low risk of bias) showed no significant benefit of lumbar traction over sham therapy with respect to pain relief, improved function, or reduced absenteeism from work.[25]

There is no evidence that conservative treatments change the natural history of disk herniation, but some offer slight relief of symptoms. Nonsteroidal antiinflammatory drugs (NSAIDs) reduce back pain somewhat in the short term, but they have a less clear benefit in patients with sciatica.[26] The few randomized trials of NSAIDs for sciatica are generally of low quality,[26] and trials to assess the use of acetaminophen in patients with sciatica are lacking.

Randomized trials show no significant advantage of systemic glucocorticoid therapy over placebo with respect to pain relief or reduced rates of subsequent surgical intervention, and they show little, if any, advantage with respect to improvement in physical function.[27,28] Adverse effects, including insomnia, nervousness, and increased appetite, are common. There is insufficient evidence to judge the efficacy of antiepileptic drugs, antidepressants, or muscle relaxants in patients with sciatica.[26]

Data from randomized trials to support the use of opioids in patients with sciatica are lacking.[26] Systematic reviews suggest that opioids have slight short-term benefits with respect to reduced back pain.[29] Convincing evidence of benefits of long-term use is lacking, and there is growing concern regarding serious long-term adverse effects such as fractures and opioid overdose and abuse.[30] The use of opioids should be limited to patients with severe pain and should be time-limited from the outset.

The use of epidural glucocorticoid injections in patients with herniated disks has increased rapidly in recent years, although these injections are used on an off-label basis. A systematic review showed that patients with radiculopathy who received epidural glucocorticoid injections had slightly better pain relief (by 7.5 points on a 100-point scale) and functional improvement at 2 weeks than patients who received placebo. There were no significant advantages at later follow-up and no effect on long-term rates of surgery.[31] Procedural complications are rare, but neurologic events such as paraplegia have been reported, and the Food and Drug Administration recently required a warning on product labels for glucocorticoids. Systemic side effects, including cortisol suppression[32] and osteopenia,[33] may also occur.

In patients with acute disk herniations, avoidance of prolonged inactivity in order to prevent debilitation is important. Most patients can be encouraged to stand and walk. The ability to sit comfortably is a sign of improvement in the patient's condition and suggests that more structured exercise can be undertaken. Evidence regarding the effects of physical therapy and exercise is limited. A systematic review of five randomized trials showed that patients who participated in supervised exercise had greater short-term pain relief than patients who received counseling alone, but this reduction in pain was small and these patients did not have a long-term benefit with respect to reduced pain or disability.[34]

A randomized trial of chiropractic manipulation for subacute or chronic "back-related leg pain" (without confirmation of nerve-root compression on MRI) showed that manipulation was more effective than home exercise with respect to pain relief at 12 weeks (by a mean 1-point decrease on a pain-intensity scale on which scores ranged from 0 to 10, with higher scores indicating greater severity of pain) but not at 1 year.[35] In addition, a randomized trial involving patients who had acute sciatica with MRI-confirmed disk protrusion showed that at 6 months, significantly more patients who underwent chiropractic manipulation had an absence of pain than did those who underwent sham manipulation (55% vs. 20%).[36] Neurologic complications in the lumbar spine, including

worsened disk herniation or the cauda equina syndrome, have been reported anecdotally, but they appear to be extremely rare.[35-37]

Wide geographic variations in rates of spinal surgery have aroused concern about overuse of spinal surgery in some areas.[38] Unless patients have major neurologic deficits, surgery is generally appropriate only in those who have nerve-root compression that is confirmed on CT or MRI, a corresponding sciatica syndrome, and no response to 6 weeks of conservative therapy. The major benefit of surgery is that relief of sciatica is faster than relief with conservative therapy, but, on average, there is a smaller advantage of surgery with respect to the magnitude of relief of back pain.[10,11] North American Spine Society guidelines note that, on average, patients with signs of psychological distress such as somatization or depression have worse surgical outcomes than those who do not have these signs, and patients with a positive straight-leg-raising test have better surgical outcomes than those with negative results on this test.[39]

Several randomized trials have compared surgery with conservative treatment for herniated lumbar disks. These trials included patients with minor neurologic deficits but not major or progressive deficits (for whom delaying surgery is ill-advised). All the trials involved the use of open diskectomy or microdiskectomy. Conservative care was not standardized, but it included at least the use of pain medication and physical therapy. None of the trials were blinded (i.e., none required sham surgery), so bias owing to patient expectations was possible. Each trial had substantial crossover between the conservative group and the surgical group, this may have "diluted" a benefit of surgery.

These trials have consistently shown faster relief of pain with surgery than with conservative treatment. However, most,[10,11,40,41] although not all,[42] trials showed no significant advantage of surgery over conservative treatment with respect to relief of sciatica at 1 to 4 years of follow-up. For example, in one trial,[10] the median time to resolution of symptoms was 4 weeks with early surgery and 12 weeks with prolonged conservative therapy; at 1 year, 5% of patients in each group had not recovered.[10] In patients assigned to conservative treatment who later crossed over to the surgical group, the results of surgery were similar to those in patients who underwent earlier surgery; this suggests the absence of a therapeutic window for surgery that closed quickly.[10] Recovery from mild motor deficits occurred in most patients with or without surgery.[10-12]

Given these results, either surgery or conservative treatment may be a reasonable option, depending on the patient's preferences for immediate pain relief, how averse the patient is to surgical risks, and other considerations. Thus, shared decision making involving both patients and physicians is valuable; meaningful involvement requires that patients be well informed about these options and their associated benefits and risks. In one randomized trial, patients with a herniated disk who saw a computer-based decision aid were less likely to choose surgery than those who received conventional written materials. Despite between-group differences with respect to rates of surgery, there were no significant differences in outcomes at 1 year of follow-up.[43]

Several diskectomy techniques are available (Figure 3). With the emergence of microdiskectomy (see the video) and minimally invasive techniques, there has been a striking shift from inpatient to ambulatory surgery. Patients may return to work quickly even after they have undergone open diskectomy. In a case series involving patients who had no restrictions on activity after surgery, one third returned to work within 1 week, and 97% returned to work by 8 weeks. The interval between surgery and return to full duty was longer in patients with physically strenuous occupations.[44]

FIGURE 3

Technique of Microdiskectomy.

Procedural complications of lumbar diskectomy are less common than procedural complications of other types of spine surgery. A registry study indicated that an estimated 0.6 deaths per 1000 procedures had occurred at 60 days after the procedure.[45] New or worsening neurologic deficits occur in 1 to 3% of patients, dural nerve-root injury occurs in 1 to 2%, and wound complications (e.g., infection, dehiscence, and seroma) occur in 1 to 2%.[46] Incidental durotomy, which occurs in approximately 3% of patients, is associated with increases in the duration of surgery, blood loss during surgery, and the length of inpatient stay,[47] as well as potential long-term effects such as headache. All tissues at the surgical site heal with some scarring, which contracts and binds nerves to surrounding structures. Normally, nerve roots glide a few millimeters in the neuroforamen with each walking step. Stretch of tethered nerves may be one source of chronic postsurgical pain.

Repeat operations, for a variety of reasons, occur in approximately 6% of patients after 1 year and in approximately 13% of patients after 4 years[48]; rates vary substantially according to the surgeon. Even after adjustment for patient demographic factors and coexisting conditions, rates of reoperation at 4 years in one state varied from 10% to 19%; this suggests variability in patient selection, quality of care, and surgical skill.[48]

Data from epidemiologic studies and biomechanical models suggest that lifestyle modifications such as smoking cessation, weight loss, and regular exercise may prevent sciatica or help to reduce its recurrence. However, we are unaware of relevant randomized trials. There is insufficient evidence to make a recommendation regarding acupuncture for sciatica.

An inflammatory component to lumbar radiculopathy has been recognized, and anticytokine therapy has been proposed. Limited clinical-trial data have been inconsistent, and this approach remains experimental.[49]

A guideline from the American College of Physicians recommends the use of CT or MRI in patients without severe neurologic deficits only if they are candidates for surgery or epidural glucocorticoid injections after a 1-month trial of conservative therapy.[20] An American Pain Society guideline recommends epidural glucocorticoid injections as an option for patients with persistent radiculopathy due to a herniated disk, with shared decision making and consideration of the inconsistent evidence, moderate short-term benefits, and lack of long-term benefits associated with this treatment. It similarly recommends shared decision making regarding surgery.[50] The recommendations in this review are generally concordant with the guidelines of the American College of Physicians, the American Pain Society, and the North American Spine Society.[39]

The patient described in the vignette presents with back and leg pain and a positive straight-leg-raising test that suggests a herniated disk. Patients should be reassured regarding the favorable prognosis of herniated disks with sciatica. Clinicians should avoid the use of frightening terms such as "ruptured disk" (which implies severe tissue damage) in favor of terms such as "protruded" disk.

Conservative therapy for 6 weeks, often including NSAIDs and exercise-based physical therapy, is appropriate for most patients in the absence of severe neurologic deficits, and we would recommend this approach for the patient described. The use of CT or MRI should be discouraged unless the symptoms do not decrease over 4 to 6 weeks and the patient is considered to be a candidate for epidural glucocorticoid injections or surgery, at which point MRI would be the best test for diagnostic confirmation and surgical planning. Epidural glucocorticoid injections may offer temporary relief in patients with the most severe pain.

In patients with pain that persists beyond 6 weeks and symptoms, findings on examination, and MRI results that are congruent, surgery is an option. Patients and physicians should be engaged in shared decision making regarding surgery, with attention to potential risks and benefits. Patients should be informed that relief of leg pain will probably be faster with surgery than with conservative therapy, that later surgery remains an option if they continue to receive conservative care, and that by 1 year, outcomes of early surgery generally do not differ from those of prolonged conservative therapy.

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Chronic Low Back Pain: Evaluation and Management

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► A more recent article on this topic is available (http://www.aafp.org/afp/2015/0501/p708.html).

► **Patient information:** See related handout on coping with chronic low back pain (http://www.aafp.org/afp/2009/0615/p1067-s1.html), written by the authors of this article.

Chronic low back pain is a common problem in primary care. A history and physical examination should place patients into one of several categories: (1) nonspecific low back pain; (2) back pain associated with radiculopathy or spinal stenosis; (3) back pain referred from a nonspinal source; or (4) back pain associated with another specific spinal cause. For patients who have back pain associated with radiculopathy, spinal stenosis, or another specific spinal cause, magnetic resonance imaging or computed tomography may establish the diagnosis and guide management. Because evidence of improved outcomes is lacking, lumbar spine radiography should be delayed for at least one to two months in patients with nonspecific pain. Acetaminophen and nonsteroidal anti-inflammatory drugs are first-line medications for chronic low back pain. Tramadol, opioids, and other adjunctive medications may benefit some patients who do not respond to nonsteroidal anti-inflammatory drugs. Acupuncture, exercise therapy, multidisciplinary rehabilitation programs, massage, behavior therapy, and spinal manipulation are effective in certain clinical situations. Patients with radicular symptoms may benefit from epidural steroid injections, but studies have produced mixed results. Most patients with chronic low back pain will not benefit from surgery. A surgical evaluation may be considered for select patients with functional disabilities or refractory pain despite multiple nonsurgical treatments.

Most primary care physicians can expect to see at least one patient with low back pain per week. Acute episodes of back pain are usually self-limited. Patients with persistent or fluctuating pain that lasts longer than three months are defined as having chronic low back pain. Patients with chronic low back pain are more likely to see a family physician (65.0 percent) for their pain compared with orthopedists (55.9 percent), physical therapists (50.5 percent), and chiropractors (46.7 percent).[1] The economic impact of chronic low back pain stems from prolonged loss of function, resulting in loss of work productivity, treatment costs, and disability payments. Estimates of these costs range from $12.2 to $90.6 billion annually.[1]

View/Print Table

SORT: KEY RECOMMENDATIONS FOR PRACTICE

CLINICAL RECOMMENDATION	*EVIDENCE RATING*	*REFERENCES*
Acetaminophen and NSAIDs are first-line medications for treating chronic low back pain	A	2, 14
Imaging, such as lumbar spine radiography, should be delayed at least one to two months in patients with nonspecific low back pain without red flags for serious disease	C	6
Evaluation of psychosocial problems and "yellow flags" are useful in identifying patients with chronic low back pain who have a poor prognosis	B	8, 9
Treatment options		
Beneficial		
Analgesics (acetaminophen, tramadol [Ultram])	A	2, 15-17
NSAIDs	A	2, 14, 17
Acupuncture	A	2, 22-24
Multidisciplinary rehabilitation	A	2, 27, 28
Likely to be beneficial		
Herbal medications (devil's claw, white willow bark, topical cayenne)	B	18
Tricyclic antidepressants	B	2, 21
Exercise therapy	B	2, 25, 26
Behavior therapy	B	2

CLINICAL RECOMMENDATION	EVIDENCE RATING	REFERENCES
Massage	B	2, 29
Spinal manipulation	B	2, 30, 31
Trade-off between benefit and harm		
Muscle relaxants (short-term use)	B	17
Opioids	B	2, 19

Evaluation

The initial evaluation, including a history and physical examination, of patients with chronic low back pain should attempt to place patients into one of the following categories: (1) non-specific low back pain; (2) back pain associated with radiculopathy or spinal stenosis; (3) back pain referred from a nonspinal source; or (4) back pain associated with another specific spinal cause[2] *(Table 1[3])*. For patients who have back pain associated with radiculopathy, spinal stenosis, or another specific spinal cause, magnetic resonance imaging (MRI) or computed tomography (CT) may establish the diagnosis and guide management.

View/Print Table

Table 1
Differential Diagnosis of Chronic Low Back Pain

Nonspecific or idiopathic (70 percent)
Lumbar sprain or strain
Mechanical (27 percent)
Degenerative processes of disks and facets
Herniated disk
Osteoporotic fracture*
Spinal stenosis
Traumatic fracture*
Congenital disease
Severe kyphosis
Severe scoliosis
Transitional vertebrae
Spondylosis
Internal disk disruption or discogenic pain
Presumed instability
Referred pain (2 percent)
Aortic aneurysm
Diseases of the pelvic organs
Prostatitis
Endometriosis
Chronic pelvic inflammatory disease
Gastrointestinal disease

The medical history should include questions about osteoporosis, osteoarthritis, and cancer, and a review of any prior imaging studies. Review of systems should focus on unexplained fevers, weight loss, morning stiffness, gynecologic symptoms, and urinary and gastrointestinal problems.

The physical examination should include the straight leg raise and a focused neuromuscular examination. A positive straight leg raise test (pain with the leg fully extended at the knee and flexed at the hip between 30 and 70 degrees) can suggest lumbar disk herniation, with ipsilateral pain being more sensitive (i.e., better at ruling out disk herniation if negative) and contralateral pain being more specific (i.e., better at ruling in herniation if positive).[4] Testing deep tendon reflexes, strength, and sensation can help identify which nerve roots are involved.

Laboratory assessment, including erythrocyte sedimentation rate, complete blood count, and C-reactive protein level, should be considered when red flags indicating the possibility of a serious underlying condition are present (*Table 2*[5,6]). Urinalysis may be useful when urinary tract infections are suspected, and alkaline phosphatase and calcium levels can help identify conditions, such as Paget disease of bone, that affect bone metabolism; however, these tests are not needed in all patients with chronic low back pain.

View/Print Table

Table 2

Red Flags Indicating Serious Causes of Chronic Low Back Pain and Evaluation Strategies

FINDING	DIAGNOSIS OF CONCERN				EVALUATION STRATEGY		
	CAUDA EQUINE SYNDROME	FRACTURE	CANCER	INFECTION	CBC/ESR/CRP LEVEL	PLAIN RADIOGRAPHY	MRI
Age older than 50 years		X	X		1*	1	2
Fever, chills, recent urinary tract or skin infection, penetrating wound near spine				X	1	1	1
Significant trauma		X				1	2
Unrelenting night pain or pain at rest			X	X	1*	1	2
Progressive motor or sensory deficit	X		X				1E
Saddle anesthesia, bilateral sciatica or leg weakness, difficulty urinating, fecal incontinence	X						1E
Unexplained weight loss			X		1*	1	2
History of cancer or strong suspicion for current cancer			X		1*	1	2
History of osteoporosis		X				1	2
Immunosuppression				X	1	1	2
Chronic oral steroid use		X		X	1	1	2
Intravenous drug use		X		X	1	1	2
Substance abuse		X		X	1	1	2
Failure to improve after six weeks of conservative therapy			X	X	1*	1	2 (or unnecessary)

NOTE: *Red flags indicate the possibility of a serious underlying condition.*

1 = first-line evaluation in most situations, 2 = follow-up evaluation, CBC = complete blood count, CRP = C-reactive protein, E = emergent evaluation required, ESR = erythrocyte sedimentation rate, MRI = magnetic resonance imaging.

** — Prostate-specific antigen testing may be indicated in men in whom cancer is suspected.*

Adapted from Kinkade S. Evaluation and treatment of acute low back pain. Am Fam Physician. 2007;75(9):1181, with additional information from reference 6.

Imaging has limited utility because most patients with chronic low back pain have nonspecific findings on imaging studies,[7] and asymptomatic patients often have abnormal findings.[6] Initial imaging with MRI, which is the preferred study, or CT is only recommended for patients with red flags for serious or rapidly progressive disease (*Table 2*[5,6]) or radicular symptoms that do not spontaneously resolve after six weeks. Because evidence of improved outcomes is lacking, imaging, such as lumbar spine radiography, should be delayed at least one to two months in patients with nonspecific pain without red flags for serious disease.[6]

Psychosocial issues play an important role in guiding the treatment of patients with chronic low back pain. One study found that patients with chronic low back pain who have a reduced sense of life control, disturbed mood, negative self-efficacy, high anxiety levels, and mental health disorders, and who engage in catastrophizing tend to not respond well to treatments such as epidural steroid injections.[8] "Yellow flags" are psychosocial risk factors for long-term disability[9] (*Table 3*[9–11]). Evaluation of psychosocial problems and "yellow flags" are useful in identifying patients with a poor prognosis.[8,9]

View/Print Table

Table 3

Psychosocial "Yellow Flags" Predicting Long-Term Disability in Patients with Chronic Low Back Pain

Affect

Anxiety; depression; feeling of uselessness; irritability

Behavior

Adverse coping strategies; impaired sleep because of pain; passive attitude about treatment; withdrawal from activities

Beliefs

Thinks "the worst" or that pain is harmful or uncontrollable, or that it needs to be eliminated (before returning to activities or work)

Social

History of sexual abuse, physical abuse, or substance abuse; lack of support; older age; overprotective family

Work

Expectation that pain will increase with work and activity; pending litigation; problems with worker's compensation or claims; poor job satisfaction; unsupportive work environment

Information from references 9 through 11.

Management

GENERAL PRINCIPLES

The goals of treating chronic low back pain often change over time, shifting from the initial intent to cure to improving pain and function. Patients often have unrealistic expectations of complete pain relief and full return to their previous level of activity. There is often a large gap between a patient's desired amount of pain reduction and the minimum percentage of improvement that would make a treatment worthwhile.[12] Documenting goals and expectations and revisiting them on follow-up visits may be helpful.

Patients should receive information about effective self-care options and should be advised to remain active (because muscles that do not move can eventually become hypersensitive to pain).[12] Assessing the response to therapy should focus on improvements in pain, mood, and function.

Treatment should begin with maximal recommended doses of nonsteroidal anti-inflammatory drugs (NSAIDs) and acetaminophen, followed by adjunctive medications. Nonpharmacologic therapies are effective in certain clinical situations and can be added to the treatment program at any time. For those with severe functional disabilities, radicular symptoms, or refractory pain, referral for epidural steroid injection or surgical evaluation may be reasonable (*Figure 1*[2]).

View/Print Figure

Treatment of Chronic Low Back Pain

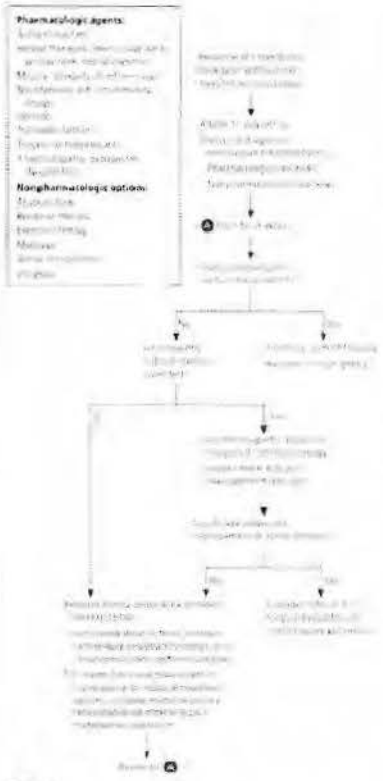

Figure 1.

Treatment algorithm for patients with chronic low back pain.

Adapted with permission from Chou R, Qaseem A, Snow V, et al., for the Clinical Efficacy Assessment Subcommittee of the American College of Physicians, American Pain Society Low Back Pain Guidelines Panel. Diagnosis and treatment of low back pain: a joint clinical practice guideline from the American College of Physicians and the American Pain Society [published correction appears in Ann Intern Med. 2008;148(3):247–248]. Ann Intern Med. 2007;147(7):492.

PHARMACOLOGIC TREATMENT OPTIONS

Acetaminophen is first-line therapy because of its high safety profile. NSAIDs provide similar analgesia, but have significant gastrointestinal and renovascular adverse effects.[2,14] There are several classes of NSAIDs, and if one class fails, medications from other classes can be tried before abandoning them altogether (*Table 4*). Tramadol (Ultram), opioids, and other adjunctive medications may benefit some patients who do not respond to NSAIDs.

View/Print Table

Table 4

Classes of Nonsteroidal Anti-inflammatory Drugs for Chronic Low Back Pain

CLASS	GENERIC (BRAND)	STANDARD DOSAGE	MAXIMAL DOSAGE (MG PER DAY)	APPROXIMATE MONTHLY COST*
Salicylic acids	Aspirin	325 to 650 mg every four hours	4,000	$3 for 325-mg dose
	Diflunisal (Dolobid)	500 mg two times daily	1,500	$77 (generic) and $73 (brand)
	Salsalate	1,500 mg two times daily	3,000	$27 to $40
	Choline magnesium trisalicylate	1,500 mg two times daily	3,000	$44 to $54
Acetic acids	Diclofenac potassium (Cataflam)	50 mg three times daily	200	$149 to $173 (generic) and $327 (brand)
	Diclofenac sodium delayed release (Voltaren)	50 mg two or three times daily	200	$85 to $98 (generic) and $192 (brand) for 50 mg two times daily
	Etodolac	200 to 400 mg two or three times daily	1,200	$77 to $90 for 200 mg two times daily

CLASS	GENERIC (BRAND)	STANDARD DOSAGE	MAXIMAL DOSAGE (MG PER DAY)	APPROXIMATE MONTHLY COST*
	Indomethacin (Indocin)	25 to 50 mg three times daily	200	$5 to $30 (generic) and $80 (brand) for 25-mg dose
	Indomethacin, extended release (Indocin SR)	25 to 50 mg one or two times daily	150	$60 (generic) and $84 (brand) for 25 mg once daily
	Sulindac (Clinoril)	200 mg two times daily	400	$72 to $80 (generic) and $86 (brand)
	Tolmetin	200 to 600 mg three times daily	1,800	$67 for 200-mg dose
Oxicam	Meloxicam (Mobic)	7.5 to 15 mg once daily	15	$95 to $108 (generic) and $117 (brand) for 7.5-mg dose
	Piroxicam (Feldene)	20 mg once daily	20	$79 to $104 (generic) and $133 (brand)
Propionic acids	Ibuprofen	800 mg four times daily or 800 mg three times daily	2,400	$30 to $35 (generic) and $48 for 600-mg dose
	Ketoprofen	50 to 100 mg three times daily	300	$60 to $204 for 50-mg dose
	Naproxen (Naprosyn)	250 to 500 mg two times daily	1,500	$42 to $72 (generic) and $70 (brand) for 250-mg dose

Tramadol is an analgesic that has weak opioid and serotonin-norepinephrine reuptake inhibitor (SNRI) activity. Studies demonstrate short-term improvements in pain and function, but long-term data are lacking.[15,16] Because of its opioid activity, tramadol generally should not be used in patients recovering from narcotic addiction. Adverse effects include drowsiness, constipation, and nausea.

All muscle relaxants provide similar short-term improvements in pain and function, but there is no evidence to support their long-term use for chronic low back pain. Sedation is a common adverse effect, and chronic use of benzodiazepines and carisoprodol (Soma) carries the risk of dependency.[17]

A 2006 Cochrane review[18] found that some herbal medications appear effective in short-term randomized trials, but lack long-term safety data. *Harpagophytum procumbens* (devil's claw) in a dosage of 50 mg daily, *Salix alba* (white willow bark, a source of salicylic acid) in a dosage of 240 mg daily, and *Capsicum frutescens* (cayenne) plaster applied topically every day appear to be better than placebo at reducing chronic low back pain. Limited studies have shown that devil's claw and white willow bark appear to be as effective as NSAIDs.[18]

Short-acting (immediate-release) and long-acting (sustained-release) opioid analgesics are sometimes used for chronic low back pain. There have been few high-quality trials to assess the effectiveness and potential risks of these medications in chronic low back pain.[19]

Taking opioids can lead to the development of tolerance, hyperalgesia (enhanced pain response to noxious stimuli), and allodynia (enhanced pain response to innocuous stimuli).[20] The combination of tolerance and hyperalgesia can decrease opioid effectiveness over time. One of the challenges of treating chronic low back pain is differentiating among tolerance, opioid-induced hyperalgesia, and disease progression. Hyperalgesia involves increasing pain despite increasing opioid treatment, pain that becomes more diffuse and beyond the distribution of the preexisting pain, and an apparent change in pain threshold or tolerability.[20] In this situation, the dosage of opioids should be decreased, or patients should be weaned off the medication altogether.

Selective serotonin reuptake inhibitors, SNRIs, and antiepileptic medications have not been shown to help patients with chronic low back pain. Tricyclic antidepressants, however, provide some benefit and can be a useful addition to analgesic therapy.[21] Gabapentin (Neurontin) may provide short-term relief in patients with radiculopathy.[2]

NONPHARMACOLOGIC TREATMENT OPTIONS

Patients commonly use nonpharmacologic treatment options, with or without consulting a physician. Forty-five percent of patients with low back pain see a chiropractor, 24 percent use massage, 11 percent get acupuncture, and 7 percent try meditation.[22]

Acupuncture provides short-term relief of chronic low back pain, improves functioning, and works as an adjunct to other therapeutic options. It has not been shown to be more effective than other treatments.[23,24] Fifty-one to 64 percent of patients are willing to try acupuncture if recommended by their physician.[22]

Exercise therapy, focusing on strengthening and stabilizing the core muscle groups of the abdomen and back, appears to produce small improvements in pain and functioning in patients with chronic low back pain. However, few studies (i.e., six of the 43 studies included in a Cochrane review) have been able to demonstrate clinically important and statistically significant differences between intervention and control groups.[25,26]

Behavior therapy is as effective as exercise therapy for short-term relief of chronic low back pain. Consistent evidence supports cognitive behavior therapy and progressive relaxation for short-term improvement, whereas biofeedback techniques have produced mixed results. Combining behavior therapy with other modalities does not have an additive effect.[2]

Multidisciplinary rehabilitation programs that include a physician and at least one additional intervention (psychological, social, or vocational) alleviate subjective disability, reduce pain, return persons to work five weeks earlier, and after returning to work, reduce the amount of sick time in the first year by seven days. Benefits persist for up to five years.[27,28]

Acupuncture, massage, and pressure point massage are mildly helpful for reducing chronic low back pain, and the benefits last for up to one year. Massage appears to be most effective when combined with exercise, stretching, and education.[29]

Spinal manipulation provides modest short- and long-term relief of back pain, improves psychological well-being, and increases functioning.[2,30] The benefits derived are not dependent on the type of training of the manipulator because osteopathic and chiropractic outcomes appear to be similar.[31]

One therapeutically directed style of yoga (Viniyoga) may provide some relief of chronic back pain. Six weeks of yoga decreased medication use and provided more pain relief than exercise and self-care. Other forms of yoga have mixed results in small studies, and at this time there is not enough evidence to recommend them.[32]

Back schools, low-level laser therapy, lumbar supports, prolotherapy, short wave diathermy, traction, transcutaneous electrical nerve stimulation, and ultrasound have negative or conflicting evidence of effectiveness.[32–35]

EPIDURAL STEROID INJECTIONS

Epidural steroid injections may help patients with radicular symptoms. Studies have found conflicting results, but the trend is toward a small improvement for up to three months after injection.[36] There is no evidence to support the use of epidural steroid injections in patients without radicular symptoms,[37] and injections are less effective in patients with severe spinal stenosis and those with stenotic lesions encompassing more than three lumbar levels.[37,38]

SURGERY

Most patients with back pain will not benefit from surgery. However, if anatomic abnormalities consistent with the distribution of pain are identified, surgery can be considered in persons who have experienced significant functional disabilities and in those with unremitting pain, especially pain lasting longer than 12 months despite multiple nonsurgical treatments. Good evidence supports the use of spinal fusion for treating back pain caused by fractures, infections, progressive deformity, or instability with spondylolisthesis.[7] Spinal decompression, nerve root decompression, and spinal fusion have been extensively evaluated for the treatment of degenerative disorders of the spine, mostly with short-term outcomes, yielding conflicting results and questionable patient benefit.[39] Disk arthroplasty (replacing the original intervertebral disk with an artificial one) appears to be as effective as lumbar fusion for short-term relief of chronic low back pain, but there is no evidence of long-term relief, and concerns exist regarding the durability of the artificial disks. Intradiscal electrothermal therapy is a technique that applies heat to a damaged disk through a catheter, causing collagen contraction for structural support and ablating nearby pain-sensing nerves for pain reduction. It has been shown to provide modest pain relief, but little functional improvement.[40]

REFERRAL

Referral to a pain management specialist is appropriate for patients who continue to experience severe functional impairment or unremitting pain, or when patients or physicians feel that progress has stopped or want a second opinion. In the absence of evidence to define the indications and timing of referral, a decision to refer should be left to the discretion of the physician and patient.[2]

The Authors show all author info

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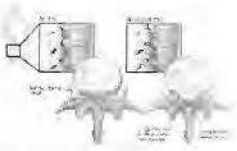
Spinal stenosis

Overview

By Mayo Clinic Staff

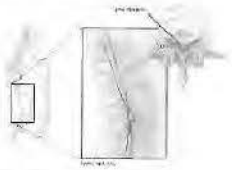
Spinal stenosis is a narrowing of the spaces within your spine, which can put pressure on the nerves that travel through the spine. Spinal stenosis occurs most often in the lower back and the neck.



Spinal stenosis

Some people with spinal stenosis may not have symptoms. Others may experience pain, tingling, numbness and muscle weakness. Symptoms can worsen over time.

Spinal stenosis is most commonly caused by wear-and-tear changes in the spine related to osteoarthritis. In severe cases of spinal stenosis, doctors may recommend surgery to create additional space for the spinal cord or nerves.



Multilevel spinal stenosis

Types of spinal stenosis

The types of spinal stenosis are classified according to where on the spine the condition occurs. It's possible to have more than one type. The two main types of spinal stenosis are:

- **Cervical stenosis.** In this condition, the narrowing occurs in the part of the spine in your neck.
- **Lumbar stenosis.** In this condition, the narrowing occurs in the part of the spine in your lower back. It's the most common form of spinal stenosis.

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Spinal stenosis surgery

Treatment for spinal stenosis depends on the location of the stenosis and the severity of your signs and symptoms.

Talk to your doctor about the treatment that's best for your situation. If your symptoms are mild or you aren't experiencing any, your doctor may monitor your condition with regular follow-up appointments. He or she may offer some self-care tips that you can do at home. If these don't

help, he or she may recommend medications or physical therapy. Surgery may be an option if other treatments haven't helped.

Medications

Your doctor may prescribe:

- **Pain relievers.** Pain medications such as ibuprofen (Advil, Motrin IB, others), naproxen (Aleve, others) and acetaminophen (Tylenol, others) may be used temporarily to ease the discomfort of spinal stenosis. They are typically recommended for a short time only, as there's little evidence of benefit from long-term use.
- **Antidepressants.** Nightly doses of tricyclic antidepressants, such as amitriptyline, can help ease chronic pain.
- **Anti-seizure drugs.** Some anti-seizure drugs, such as gabapentin (Neurontin) and pregabalin (Lyrica), are used to reduce pain caused by damaged nerves.
- **Opioids.** Drugs that contain codeine-related drugs such as oxycodone (Oxycontin, Roxicodone) and hydrocodone (Norco, Vicodin) may be useful for short-term pain relief. Opioids may also be considered cautiously for long-term treatment. But they carry the risk of serious side effects, including becoming habit forming.

Physical therapy

It's common for people who have spinal stenosis to become less active, in an effort to reduce pain. But that can lead to muscle weakness, which can result in more pain. A physical therapist can teach you exercises that may help:

- Build up your strength and endurance
- Maintain the flexibility and stability of your spine
- Improve your balance

Steroid injections

Your nerve roots may become irritated and swollen at the spots where they are being pinched. While injecting a steroid medication (corticosteroid) into the space around impingement won't fix the stenosis, it can help reduce the inflammation and relieve some of the pain.

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Steroid injections don't work for everyone. And repeated steroid injections can weaken nearby bones and connective tissue, so you can only get these injections a few times a year.

Decompression procedure

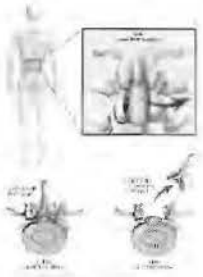
With this procedure, needle-like instruments are used to remove a portion of a thickened ligament in the back of the spinal column to increase spinal canal space and remove nerve root impingement. Only patients with lumbar spinal stenosis and a thickened ligament are eligible for this type of decompression.

The procedure is called percutaneous image-guided lumbar decompression (PILD). It has also been called minimally invasive lumbar decompression (MILD), but to avoid confusion with minimally invasive surgical procedures, doctors have adopted the term PILD.

Because PILD is performed without general anesthesia, it may be an option for some people with high surgical risks from other medical problems.

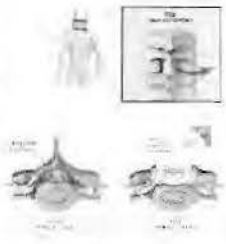
Surgery

Surgery may be considered if other treatments haven't helped or if you're disabled by your symptoms. The goals of surgery include relieving the pressure on your spinal cord or nerve roots by creating more space within the spinal canal. Surgery to decompress the area of stenosis is the most definitive way to try to resolve symptoms of spinal stenosis.



Lumbar laminectomy

Research shows that spine surgeries result in fewer complications when done by highly experienced surgeons. Don't hesitate to ask about your surgeon's experience with spinal stenosis surgery. If you have any doubts, get a second opinion.

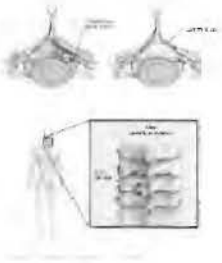


Cervical laminectomy

Examples of surgical procedures to treat spinal stenosis include:

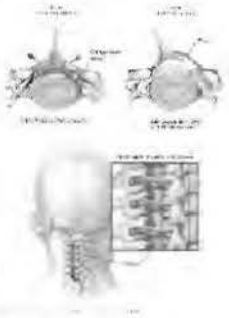
- **Laminectomy.** This procedure removes the back part (lamina) of the affected vertebra. A laminectomy is sometimes called decompression surgery because it eases the pressure on the nerves by creating more space around them.

  In some cases, that vertebra may need to be linked to adjoining vertebrae with metal hardware and a bone graft (spinal fusion) to maintain the spine's strength.



Laminotomy

- **Laminotomy.** This procedure removes only a portion of the lamina, typically carving a hole just big enough to relieve the pressure in a particular spot.
- **Laminoplasty.** This procedure is performed only on the vertebrae in the neck (cervical spine). It opens up the space within the spinal canal by creating a hinge on the lamina. Metal hardware bridges the gap in the opened section of the spine.



Laminoplasty

- **Minimally invasive surgery.** This approach to surgery removes bone or lamina in a way that reduces the damage to nearby healthy tissue. This results in less need to do fusions.

  While fusions are a useful way to stabilize the spine and reduce pain, by avoiding them you can reduce potential risks, such as post-surgical pain and inflammation and disease in nearby sections of the spine. In addition to reducing the need for spinal fusion, a minimally invasive approach to surgery has been shown to result in a shorter recovery time.

In most cases, these space-creating operations help reduce spinal stenosis symptoms. But some people's symptoms stay the same or get worse after surgery. Other surgical risks include infection, a tear in the membrane that covers the spinal cord, a blood clot in a leg vein and neurological deterioration.

Potential future treatments

Clinical trials are underway to test the use of stem cells to treat degenerative spinal disease, an approach sometimes called regenerative medicine. Genomic medicine trials are also being done, which could result in new gene therapies for spinal stenosis.

Alternative medicine

Integrative medicine and alternative therapies may be used with conventional treatments to help you cope with spinal stenosis pain. Examples include:

- Massage therapy
- Chiropractic treatment
- Acupuncture

Talk with your doctor if you're interested in these treatment options.

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MEDICAL RECORD | **CHRONOLOGICAL RECORD OF MEDICAL CARE**

DATE	SYMPTOMS, DIAGNOSIS, TREATMENT TREATING ORGANIZATION (Sign each entry) JTF –JMG, Medical Department, Guantanamo Bay, Cuba
17SEP12 2000	DURING EVENING MED PASS, PT C/O OF ITCHING ON HIS LIP. PT HAS WHAT APPEARS TO BE FLUID FILLED BUMPS ON HIS LOWER LIP ON THE LEFT SIDE. CONTACTED SMO FOR MEDICAL [illegible] DIRECTION. GIVEN TWO OPTIONS. IF AVAILABLE, PLACE A VERY SMALL AMOUNT OF ZOVIRAX Zq IN CUP FOR PATIENT, OR OFFER VALTREX 500mg BID x 3 DAYS. PT REQUESTED THE OINTMENT OF THE TWO TREATMENT OPTIONS. NO FURTHER INTERVENTION AT THIS TIME. Med 7 [redacted] SHO
	Reviewed – Hx h/o HSV I, this is c/w that. Dr. SR [redacted] /SMO
08NOV12 2020	DETAINEE REQUESTS TO HAVE AN APPT. c̄ SMO ON 09NOV12 IRT "BACK PAIN." WOULD NOT ELLABORATE c̄ HM. HM 46 [redacted]
	Reviewed Dr. SR [redacted] /SMO
09NOV12 0830	DETAINEE AGREED TO HAVE SCHEDULED APPT c̄ SMO ON 09NOV12 @ 1045 IN TX RM. HM 44 [redacted]
	Reviewed Dr. SR [redacted] /SMO
~~09~~ 09NOV12 1000	DETAINEE INFORMED GUARD STAFF AND HM THAT HE NO LONGER WANTED TO ATTEND SCHEDULED APPT. c̄ SMO ON 09NOV12 @ 1045. HM INFORMED DETAINEE THAT HIS REQUEST WOULD BE PASSED ON TO THE SMO. HM 44 [redacted]
	Reviewed Dr. SR [redacted] /SMO
09Nov12 1050	Detainee declines medical appt as he does not want to move from cell. HM offered detainee appt one more time and he again refused. Unable to evaluate his back pain complaint though we'll have, will offer appt for next week.
	Reviewed Dr. SR [redacted] /SMO
11NOV12 1800	SPOKE c̄ DET. DURING PM MED CALL. HE REQUESTS APPT c̄ SMO IRT "BACK PAIN." HM 46 [redacted]
	Reviewed Dr. SR [redacted] /SMO
15NOV12 2348	DETAINEE OFFERED & ACCEPTED APPT w/ SMO SCHEDULED FOR 16NOV12 @ 0900 HM 45 [redacted]
	Reviewed Dr. SR [redacted] /SMO

DETAINEE 'S IDENTIFICATION NUMBER:
10026

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MEDICAL RECORD
STANDARD FORM 600 (rev. 9/05)