

Spinal Tapping

SpineConnect allows surgeons to collaborate on tough cases, instantly, from all over the world.

Instant Collaboration

Sharing knowledge on the Internet can be a matter of life and death.

By Cheryl Woodruff

Google “collaborative knowledge networks” and you’ll find hundreds of Web-based organizations where people gather online to share knowledge for the sake of business, education, technology, and hobbies. But you won’t see any like SpineConnect.com, where sharing the knowledge could be a matter of life and death.

When spine surgeons get extreme or unusual cases of spine injuries, which often require quick decisions with little time for research, they simply sign on to SpineConnect, describe the situation, and ask for help from their colleagues, some of whom are on the other side of the planet.

In less than a year, SpineConnect has built a leadership council of the top spine surgeons in the country, signed up 250 surgeons from all over the world, and now counts as collaborators more than 40 fellowships from such prestigious institutions as Cleveland Clinic and UCLA. So far, 350 difficult spine cases have been “discussed” with 1,400 reviews from spine surgeons all over the world via SpineConnect.

While the ultimate purpose of SpineConnect is for the benefit of seriously injured patients, the Web site grew out of a business enterprise, and is, in fact, a collaboration network that shares innovative ideas for new products. And spine surgeons seem to have many.

The genesis of the idea goes back to the 1990s when Scott Capdevielle studied under Raymond Miles, dean of the business school at University of California Berkeley. “Around 2000, he [Miles] started writing papers about why open-source communities were so effective,” recalls Capdevielle. “These communities freely share their intellectual properties to create software applications.”

In 2000, Capdevielle founded Syndicom, which was designed to “facilitate the development, management, and distribution of intellectual property” (that’s short for creating patents and bringing medical technology and instrumentation to market), with Stryker Spine, DePuy Spine, SeaSpine, and NuVasive as sponsors. As a result of surgeons collaborating, they have already applied for one patent and have four more in the works.

“We have this community with massive amounts of IP (intellectual property),” says Capdevielle, “so I want to connect device CEOs to bring these good ideas to market in an effective way. We want these product companies to tap into this network to supplement their R&D function.”

In the beginning, Capdevielle consulted with Jim A. Youssef, MD, a college friend from Berkeley, and, ultimately, the two collaborated with spine surgeons Jeffrey C. Wang, MD, and Darrel S. Brodke, MD, to make SpineConnect the first project of Syndicom.

“The actual platform in this knowledge base of cases has been accessed over 20,000 times, either by surgeons or for a teaching platform,” says Youssef. “Given the fact that SpineConnect represents only the most difficult and interesting cases, these are powerful numbers. It provides evidence-based medicine. The surgeon has the ability to get the most current information, to access many minds at once, and to capture the tacit information that journals cannot hope to communicate. It improves patient outcomes.”

A Collaborative Case Posted on SpineConnect.com by Jim Youssef, MD, and Andrew Paterson, MD

BACKGROUND INFORMATION

The following May 2006 case illustrates the profound collaborative nature of SpineConnect.com. The treating physicians were faced with a unique case involving a 16-year-old female who suffered her injury while cliff-jumping into a lake. Given her young age, the location of her fracture, and her underlying anatomy, they decided to post this case to the SpineConnect community in hopes of gaining further insight from their colleagues.

The initial thoughts were to consider operative intervention given the severe canal compromise, and the fracture pattern. However, the patient remained neurologically intact, and therefore consideration for nonoperative treatment became a viable option. The case was posted at 9 PM on a Saturday evening, and by noon the following day, the surgeons had received 10 reviews including one from a pediatric spine surgeon in Ankara, Turkey. Of the 16 member reviews submitted, the overwhelming majority recommended nonoperative treatment.

One contributor, highlighting SpineConnect’s use for evidence-based medicine, cited that the literature would suggest that the treatment of low lumbar burst fractures in neurologically intact patients favors nonoperative treatment over surgical intervention.

Diagnosis

16-year-old with L4 burst, neuro intact, significant canal compromise.

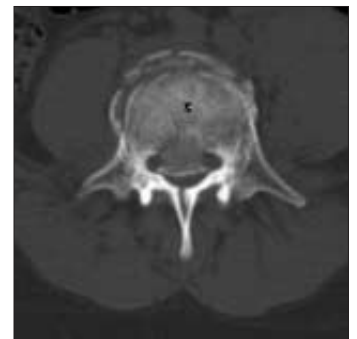
Question

Operate? posterior only? anterior? both? levels? I am thinking of going posterior L3-5 with screws, PSF. Take note of transitional segment. Thoughts??

Specifics

Spine Region: Lumbar L4
 Injury Type: Traumatic - pediatric
 Date of injury: May 20, 2006
 Pertinent positives: Acute back pain
 Pertinent negatives: Neurologically intact
 Mech of injury: Fall
 Gender: female
 Age: 16
 Smoker: No
 Allergies: NKDA

Preop images



Preop images



SPINECONNECT REVIEWS BY SURGEON MEMBERS AS POSTED

Alan Hilibrand, MD, 5/20/06,
9:31 PM:

If the patient is truly neuro intact (no B/B problems), I would strongly advise nonoptreatment...the compromise will improve, and her alignment should remain OK.

Tom Mroz, MD, 5/20/06, 10:13
PM:

Jim, if this young patient is intact, would treat non-op. If not, would do this posteriorly.

Carlo Bellabarba, MD, 5/20/06,
11:33 PM:

Jim, I would agree with the above comments. I'd mobilize her in an HTLSO (thoracic lumbosacral orthosis) and get upright xrays. If she develops radiculopathy when mobilizing, however, or if there are potential bladder issues that manifest themselves when discontinuing her foley, I would then lean toward operating. I've seen many situations when symptoms manifest themselves only after patients start loading their spines. The operation I'd choose is posterior L3-L5 with laminectomy and canal 'disimpaction' if any substantial retropulsion after you've stretched her out.

Jeff Wang, MD, 5/21/06, 12:07 AM:

This is a young patient who is neurologically intact, so the party line is to stay conservative. However, there is a lot of stenosis, and you never see a lot of kyphosis in these low lumbar fractures. I agree with Carlo; get the patient up in a brace, and you will see more collapse and perhaps some more loss of lordosis or at least some symptoms which may force your hand to operate. I would bet you will see symptoms or significant pain that would tip your hand towards surgery.

Darrel S. Brodke, MD, 5/21/06, 12:37 AM:

Agree with above. Would prefer non-op. This is 2 points in the TLICS system (non-op), if she remains neurologically normal. Mobilize in brace (I usually tell patient and family this is a trial brace), lay crape and watch closely for symptoms.

Alex Vaccaro, MD, 5/21/06, 6:52 AM:

This patient should be placed in an LSO with leg extension and be treated non-operatively.

Preop follow-up from Jim Youssef, MD, 5/21/06, 8:09 AM:

Thanks for all the comments! My gut feeling was to try a brace first and see. She is to receive her brace today, and if she fails (ie develops radiculopathy or B/B issues), then operate. The concern is taking an intact patient, loading her spine and having her develop neuro issues and then relying on surgery to get her back to an intact status. I will keep you posted. Thanks again!

Pierce Nunley, MD, 5/21/06, 8:29 AM:

This concerns me. She is young with tremendous potential to recover, however, this fracture is above a Bertolotti's variant and may act like an L5 Burst. She has tremendous canal compromise and fractures in all columns. As much as I would not want to operate on her, if it were my daughter, I would perform a posterior 3-5 within 24 hours of injury. That is your best chance of reduction. If you got a good intraoperative reduction you could graft through the pedicle and only do fixation with the intent of removing hardware at 1 year postop through a Wiltse approach. If you wait and treat nonoperatively, then you may have to go anteriorly to achieve the goals of the procedure. Good luck. This is a hard decision.

Anonymous, 5/21/06, 9:10 AM:

Jim, I just reviewed a paper for publication [in which the] authors describe 10-year hx of cases of L5 Burst (essentially what you have here). Nonop did superior.

S.T., MD, 5/21/06, 10:55 AM:

Jim, I would try to treat this patient nonoperatively. I would see her back weekly to make sure she doesn't progress to a neurologic deficit. Tough problem.

Muharrem Yazici, MD, 5/21/06, 12:24 PM:

I would also suggest the nonoperative treatment. But, I prefer to cast application under the anesthesia (or sedation) for a minimum 3-month period.

Amit Agarwala, MD, 5/21/06, 12:26 PM:

Andrew and Jim: I agree with strong opinions above for nonoperative treatment. However, I have had a handful of cases of lumbar burst fxs seemingly neuro intact with greater than 50% canal compromise that were unable to urinate when the Foley was pulled 48 to 72 hours after injury and mobilizing in brace or cast. I might be anxious to get Foley out once her brace is ready, and see if she is truly neuro intact, as posterior surgery for indirect reduction works best in initial 48 hours, as you know. Having said that, two patients this past 6 months operated on for urinary retention and otherwise neuro intact are still having to self cath now over 4 months out. Hope she does well!

Joe Riina, MD, 5/21/06, 2:30 PM:

I agree with the previous reviews of the case. I would recommend a nonoperative approach. Try the brace, it is very important to include the leg extension, otherwise you concentrate the stress at the level of the fracture. It is important to note that even though her exam is consistent with being neuro intact you have not tested urinary function if a foley is in place.

Roger Sung, MD, 5/21/06, 4:56 PM:

Nonop in brace to start. Surgery only if neuro symptoms develop.

E.W., MD, 5/21/06, 7:54 PM:

Agree—would get serial films to ensure no increased kyphosis or neuro sx's (radic or B/B). Canal will remodel if she heals without progressive kyph. I would guess 50:50 chances of needing to operate for these or pain issues. Good luck.

Rick Sasso, MD, 5/22/06, 6:21 AM:

You are doing the right thing Jim. Upright x-rays in her brace are important before leaving the hospital—as well as close follow-up neurologic exams and x-rays.

Paul A. Anderson, MD, 5/22/06, 4:59 PM:

Great case. I would treat non-operatively with TLSO and leg extension. Also consider bed rest for 4 weeks with anticoagulant therapy.

Preop follow-up from Jim Youssef, MD, 5/24/06, 10:56 PM:

Thanks again for all the suggestions. Currently, she remains neuro intact with normal B/B. I have elected to continue with bedrest followed by mobilization in a brace with thigh extension. If things change, I will keep you posted.

Follow-up from Jim Youssef, MD, 7/13/06, 9:30 AM:

Patient was treated nonoperatively over a 10-week period, with 4 weeks of bed rest, 6 weeks with a brace, and 6 weeks of physical therapy. She is doing great, has remained neurologically intact, has completed physical therapy and has no back pain.

This case collaboration occurred and appears on SpineConnect.com.