Marking the site for spinal surgery

What is required to verify the site for a spinal surgery procedure? Among issues are how to mark the skin, who should do the marking, and how to verify the site in the OR.

The Joint Commission on Accreditation of Healthcare Organizations (JCAHO) addresses spinal surgery in its new universal protocol for preventing wrong surgery, which takes effect July 1. The universal protocol states that procedures will be marked that involve:

- right/left distinction
- multiple structures (eg, fingers and toes)
- multiple levels (as in spinal procedures).

The site is to be marked “such that the mark will be visible after the patient has been prepped and draped.”

For spinal cases, the protocol states: “In addition to preoperative skin marking of the general spinal region, special intraoperative radiographic techniques are used for marking the exact vertebral level.”

Two-stage approach

JCAHO expects a two-stage approach for spinal cases, Richard Croteau, MD, JCAHO’s executive director for strategic initiatives, told OR Manager.

First, preoperatively, JCAHO expects the skin to be marked in the general region of the spine where the surgery will take place.

That is a requirement because “we have [reports of] cases in which operations have been initiated at the wrong level. That clearly would have been prevented by preoperative marking,” he said. JCAHO prefers that the skin be marked by the person performing the procedure but allows some latitude (related article, p 7).

Second, after the patient is in the OR, there is a time-out to verify the site, including checking the skin marking. Then, typically, after the operation begins and the surgical site is opened, the surgeon places a radiopaque marker at the site, and a film is taken. This film is compared to the preoperative films to verify the site precisely.

“There are variations in exactly how that is done, and we are not going to prescribe that,” Dr Croteau said. “The purpose was to say that we recognize the preoperative skin marking is not going to localize the site precisely. You have to do something else to achieve that.”

Not all are marking skin

Not all ORs currently mark the skin for spinal surgery, an informal poll by OR Manager found. A total of 13 hospitals participated in the poll conducted by e-mail and phone calls. Of the 13, 7 were marking the skin before the procedure, and 6 were not. After the patient is taken to the OR:

- All said they were doing a time-out to verify the patient, site, and levels, including a review of preoperative documentation and diagnostic films.
- Prior to the incision, 3 were placing a marker, such as a needle, and taking a film to verify the site.
- After the incision, all were taking an intraoperative film with the site marked by a needle or instrument.

One hospital with a large spine program performing 3,200 spinal cases a year described a process similar to what JCAHO recommends:

1. In the preoperative area, the region of the spine is marked by the nurse with the levels identified in the informed consent. The site is marked for right or left or both if bilateral.

2. In a two-step process in the OR:
   a. Before the incision, there is a timeout to confirm the correct patient, the site
and site marking, and the procedure to be done.
b. After the incision, the surgeon must mark the level with a needle or instrument. The level is confirmed by x-ray, read by the surgeon. This is an institutional policy.

"Surgeon should sign"

The American Academy of Orthopaedic Surgeons (AAOS) advocates that surgeons, consulting with the patient if possible, mark their initials on the operative site. For spinal cases, AAOS also recommends that the surgeon take an intraoperative x-ray using markers that do not move to confirm the site. (The statement is at www.aaos.org. Enter search term “wrong site surgery.”)

AAOS takes the position that the surgeon should be the one to sign the site preoperatively after talking with the patient before the patient is sedated.

“We are strong in saying it should be the surgeon who marks,” Dr Herndon says.

A recent study shows relying too much on the patient to mark the site without the surgeon may be risky. The study of 100 patients having foot and ankle surgery found 37 did not comply with specific instructions to mark their site (DiGiovanni C W, Kang L, Manual J. J Bone Joint Surg Am. May 2003; 85-A:815-819).

Dr Herndon said x-rays to verify the site are important, particularly for new minimally invasive procedures, because the surgeon does not have enough exposure of the spine to count the levels to verify the one to be operated on.

“If I were a hospital CEO, my protocol would be to say that if the surgeon can see anatomical markers to verify the site, that’s OK. If not, I would expect an x-ray to be taken,” he said.

The North American Spine Society advocates that surgeons involve the patient in confirming the site, either through the informed consent or by marking. The society has a checklist for surgeons to use at www.spine.org. The site also has anatomical diagrams of the spine surgeons can use in the informed consent process.

“The surgeon can mark the level on the diagram. We suggest giving patients the diagram to take to surgery with them. The surgeon can also duplicate it and put it in the packet that goes from the office to the hospital,” commented David Wong, MD, the society’s president.