

Wrong Level Spine Surgery

Excerpt from Wrong-level surgery: A unique problem in spine surgery
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Discussion:

No spine surgeon, no matter how experienced he or she is, dares to say wrong-level spine surgery would never happen to him or her. One can argue wrong site surgery or wrong side surgery is purely due to carelessness of the surgeon. On the other hand, the unique anatomy of the spine can be a set-up of wrong level surgery performed even when the surgeon pays a conscious effort to identify the correct level. And yet, a mistake is a mistake in front of the court of law, and it has proven that this type of mistake is not only financially costly, but it also generates disciplinary action against the surgeon from the State Licensing Board. Even though intraoperative X-ray to identify the correct level can prevent the majority of wrong-level surgery, I developed a protocol here which I believe can prevent wrong-level spine surgery.

1. Prevention of wrong-level spine surgery starts in the doctor office. Make sure the patient is scheduled and consented for the correct side and correct level(s). It is the ultimate responsibility of the surgeon to make sure his/her office staff schedule the surgery correctly.
2. Pre-operative imaging studies to identify the intended level(s) of surgery, and also to identify any congenital abnormality in anatomy.
3. For those places that still use viewing boxes in the operating room (OR), it is the responsibility of the surgeon to ensure the proper placement of X-rays and scans on the viewing boxes. It is too easy for an OR staff with not much knowledge in spine imaging to put the scan left and right reversed.
4. Reliable intra-operative X-ray quality so that the level(s) of interest can clearly be counted without doubt.
5. When difficulty in counting the levels is anticipated, request fiducial markers be placed by interventional radiologist before the surgery (e.g., Case 1).
6. When encountering difficulty in counting the correct levels during surgery, ask for assistance from the radiologist (e.g., Case 2).
7. Intra-operative X-ray to confirm the intended levels of surgery is performed. When instrumentation is used, postoperative X-ray to verify proper placement of instrumentation and the levels is recommended, preferably before the incision is closed.

Spine surgeons must realize that wrong-level spine surgery can happen in both simple and complex spine cases, therefore conscious effort must be made for every spine surgery performed. When there is doubt about the correct level during the surgery, pause and always ask for help such as from our radiologist colleagues.

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