Complications following intraspinal injections of steroids

Report of two cases

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Intraspinal steroids have been recommended for the treatment of sciatica and various other conditions. The procedure is controversial; moreover, evidence suggests that the steroid hormones can be delivered to the site of inflammation more easily by systemic administration. Serious complications that have arisen from the procedure are reviewed. The courses of two women who received intraspinal steroids for the treatment of sciatica and who developed severe meningitis as a consequence are reported. It is suggested that the value of intraspinal steroids in the treatment of disc-related sciatica is unproven and if they are used, one must be alert to the complications.

KEY WORDS • intraspinal steroid • sciatica • meningitis

INTRASPINAL injection of steroids for the treatment of sciatica is a common practice in many medical communities. Although a number of enthusiastic reports have suggested that this procedure reduces both the pain and the period of disability,偶尔 occasional complications of both epidural and intradural injection of steroids have been witnessed. We wish to report two additional cases in which an attempt at epidural injection of steroids for sciatica resulted in serious and nearly fatal complications.

Case Reports

Case 1

This 34-year-old woman had complained for 1 year of midline lumbar back pain. Two months before admission, the pain developed a radicular quality, suggesting an L4–5 radiculopathy. Her private physician injected epidural hydrocortisone and normal saline on three separate occasions. After the last injection, she experienced the onset of severe local pain in the area of the injection site. She returned to her physician 48 hours after this injection and a small amount of “fluid” was aspirated from subcutaneous tissues. Later that day she developed fever, headache, photophobia, and a stiff neck, and was brought to the emergency room by her family.

On arrival at the hospital she was lethargic. Her temperature was 39°C, and she had obvious signs of meningitis. In addition, she had an erythematous, warm, tender area in the midlumbar region which was felt to represent an area of cellulitis. A cisternal tap revealed grossly purulent cerebrospinal fluid (CSF)
with over 3000 white cells. Gram stain demonstrated a large number of Gram-positive cocci. She was started on antibiotics (penicillin, methicillin, and chloramphenicol) and slowly recovered over a 10-day period with gradual clearing of the cellulitis. She fortunately recovered without significant neurological residua.

Case 2

This 29-year-old neurology-neurosurgery staff nurse had previously undergone laminectomy and disc excision on two separate occasions because of sciatica. Intermittent low-back pain following the second operation interfered with her professional duties and resisted all conservative relief measures. The patient referred herself to a physician known to have treated similar patients successfully with epidural steroids. On three separate occasions 1 to 2 weeks apart, 2 to 3 cc of Depo-Medrol (methylprednisolone acetate) was injected through a No. 17 thin-walled needle into what was thought to be the epidural space. Clear watery fluid obtained during the third needle placement was thought to represent a loculated steroid deposit, a residuum from prior injections. The patient reported complete relief of her low-back pain following the last injection.

Ten days later she awoke with a severe headache. Examination revealed a CSF leak at the last injection site. Admission to hospital, bedrest, epidural blood patch, and finally scarification and primary closure of the needle track failed to stop the CSF leak. The patient then became febrile and complained of severe headaches on the seventh hospital day. Examination disclosed severe neck stiffness, and a lumbar puncture performed well above the CSF fistula revealed purulent CSF. After cultures of CSF and blood were obtained she was placed on antibiotics (methicillin, ampicillin, and chloramphenicol). She displayed an unusually virulent course, and deteriorated rapidly over the next 24 hours. She became confused and stuporous, and developed quadriplegia, multiple cranial nerve palsies, and nystagmus. Respiratory failure necessitated a tracheostomy and assisted ventilation. The CSF cultures grew microphilic streptococcosis sensitive to penicillin. Despite apparently appropriate antibiotic therapy the patient developed an overwhelming neurological deficit which very nearly proved fatal. She is now rapidly improving but is clearly faced with a long period of rehabilitation and undoubtedly will be left with some permanent neurological deficits.

Discussion

These two cases illustrate the risk of intraspinal steroid injections. In both cases an epidural injection was attempted; however, it seems likely that at least in Case 2 the intradural space was entered. Dilke, et al., reported that in 100 consecutive extradural injections of steroids for sciatica, CSF was inadvertently tapped on six occasions. Deposition of intradural steroids for a variety of conditions has been followed by tuberculous meningitis, adhesive arachnoiditis, aseptic meningitis, and sclerosing spinal pachymeningitis.

The cellulitis and persistent CSF fistula observed in these cases were the result of either steroid suppression of the normal inflammatory response, or steroid inhibition of the fibroblast proliferation that normally obliterates a needle track.

We suggest that the unproven efficacy and the potential risks do not support the use of intraspinal steroids. Moreover, recent reports suggest that systemically administered dexamethasone benefits pain as well as shortens the period of disability in patients with radiculopathy caused by disc disease.

References

Complications of intraspinal injection


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