Is transforaminal retrieval of intradiscal deeply seated broken surgical knife blade all time pars sparing? A case report

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BACKGROUND: One risk accompanying with Lumbar discectomy is breaking of the surgical scalpel during discectomy. Greatest of the broken blades can be detached during the first surgery. Conversely, in few cases, surgeon’s efforts might be ineffective, causing in engaged foreign body in the disc space. Works regarding this matter is infrequent, and there are no exclusive strategies to discou thes complication.

PRESENTATION OF CASE: A 26-year-old female with L5–S1 left disc sequestration and plantar flexion disturbance, underwent a one level hemilaminectomy for lumbar disc herniation. The knife blade was broken in the disc space and could not be found despite 3 h consumed on its tried removal by her surgeon. Transforaminal path as an unconventional access strip for its removal was planned, but pars inter articularis was not saving intact and fusion process had done. The patient was discharged a day after blade removal and fusion surgery is doing well now.

CONCLUSIONS: The transforaminal route might be a harmless and informal substitute corridor for all intradiscal retained foreign bodies including a broken blade. Sometimes because of better exposure especially in deeply seated material, resection of pars and then fusion surgery avoid inevitable.

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1. Introduction

After the increase in surgery of the spine and discs, rate of complications associated to these procedures are growing. Among the most public complication of lumbar disc surgery are rare occasions, of which there are few reports in the literature. Among this events are cases in which cups of curets or forceps or blades become disconnected [1].

Knife blade may be occasionally broken throughout disc surgery, but it can be removed in the mainstream of the cases. However, in rare cases, it cannot be originated and retrieved after some hours owed for this purpose despite the use of intra-operative imaging and fluoroscopy.

In such examples, the anterior or anterolateral corridor is used for its removal to avoid problematic complications and following medico legal penalties [1].

The literature has not lectured this complication sufficiently, and only 1 set of rules has been written about the retrieval of retained surgical blade, suggesting the anterior approach. This patient should be kept under close observation. If the broken knife blade and its sharp edge is facing anteriorly within the disc space (like our cases) spontaneous migration of the blade can occur with each motion of body and hazard of intra abdominal visceral and vascular injuries. And such fragment should be removed during another procedure if in same procedure it cannot be found and retrieved after several hours allocated for this purpose in patients in whom the blade is within a collapsing disc space or is pointing toward vertebral body, follow up could be better for patient with reassurance [1].

We present a case in which retrieval of the broken blade could be easily achieved via the transforaminal route in 2013 that in which we could save the pars intact [2]. Here in, we present a new cases in which we cannot save pars inter articularis intact via a transforaminal approach for removal of deeply seated broken blade in disc space.

However, we insist that this corridor can be used for all other intradiscal foreign bodies such as broken disc forceps, curette tips, or even the bullets again even if the foreign body is very deep in the disc space [1,3].

2. Presentation of case

A 26-year-old female with L5–S1 left disc sequestration and plantar flexion disturbance, underwent a L–level hemilaminectomy for lumbar disc herniation for L5–S1 disc herniation.
The knife blade was broken in the disc space and could not be found despite 3 h consumed on its tried removal by her surgeon. She was transferred to our center 3 days after surgery. Plain radiographs revealed that the blade was entrenched far laterally in the disc space in the left side (Fig. 1A and B). The extreme far lateral and deeply seated location of the blade was strong-minded more exactly in axial and reconstructed sagittal computed tomographic scans and images after 3 days rather than first day images showed blade has gone ahead in-depth in disk space (Fig. 2A and B).

In second surgery, the original incision was revived until the L5-S1 disc space could be reached through the left transfemoral route. Because of hypertrophy of the facet joints, small portions of consistent joints were drilled, after several attempts we were unable to save the pars intact and for better exposure we had to take pars inter articularis. Then, the suitable annulus was removed where the examination of the disc contents could become achievable under magnification as long as by a surgical microscope. The broken blade was obviously seen at this instant and then it was grasped and introverted using a bayonet forceps notably, the broken blade probably made of second-rate alloy was entirely discolored (Fig. 3). Posterolateral fusion process with pedicular screw and inter body tricortical graft had done, and the wound was closed properly (Fig. 4).

The patient was discharged a day after surgery and was doing well 3 months after surgery.

3. Discussion

The incidence of reserved broken blade during lumbar disc surgery is hard to approximate because of the scarcity of the works on this theme. Furthermore, spine surgeons have very imperfect knowledge with its removal [1,4,5]. Really, organization of this uncommon injury that can posture thoughtful medico legal significance wants a detailed argument. In spite of absence of adequate information about the natural history of engaged intradiscal surgical blade in the literature, ongoing relocation of the broken blade in the direction of the retroperitoneal space or to the spinal canal with opportunity of serious involuntary penalties is assumed [1]. On the contrary, the surgical knife blade is not an unmotivated alloy and might experience chemical changes inside the disc, which may result in severe granulomatous response. But, many patients...
because of the mental effects of foreign bodies request for its harvest from surgery field.

A broken blade can typically be re-claimed if the surgeon assigns enough time and tolerance to the energy. However, despite all labors, the broken blade might be impossible to discover and remove. The only item that be present proposes the anterior approach. Speciously, an additional anterior incision is hardly satisfactory to the patient or the families. Thus, the posterior transforaminal corridor or might be a proper choice for retrieval of a broken blade. The benefit of this approach is that it is familiar for all spine surgeons, avoiding expansion time reducing the probability of psychological significance and prevention redundant anterior procedure.

Ultimately, with the submission of this route, alien substances other than a broken surgical blade can be removed [3,6].

A simple withdrawal is adequate for the organization of all retained intradiscal foreign bodies if the truth of the pars conserved. However, for better exposure of intradiscal contents as in our cases, resection of the pars becomes necessary and then transforaminal lumbar inter body fusion (TLIF), in combination with pedicle screw instrumentation, will be required [7,8].

Our case is the first one that really proves that a scalpel can move disk space even within 3 days after first surgery, so to avoid complications are expected must be removed.

4. Conclusion

The transforaminal route might be a harmless and informal substitute corridor for all intradiscal retained foreign bodies including a broken blade.

Sometimes because of better exposure resection of pars and then fusion surgery avoid inevitable.

Conflict of interest

None declared.

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Ethical approval

Written informed consent was obtained from the patient for publication of this case report and accompanying images.

Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images.

Author contribution

All steps of article from design to writing made by Kaveh Haddadi.

Guarantor

None.

References