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## Retrieval of a retained broken scalpel blade from lumbar intervertebral disc space - a case report

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**Abstract:** Lumbar discectomy is a common procedure in neurosurgery, besides the common complications broken scalpel blade during disc removal is a rare event. Usually retrieval of such sharp retained fragments in same sitting is difficult and to prevent further complications another session is warranted [1]. We report a case of broken scalpel blade during L1-L2 lumbar intervertebral disc removal and successful surgical retrieval of that tip of knife with the help of operative microscope under fluoroscopic guidance during same sitting before any hazardous complications develop.

**Key words:** broken scalpel, fluoroscopy, retrieval

### Introduction

Lumbar discectomy is being done in increasing frequency worldwide, one such risk associated with this procedure is breaking of the surgical knife blade during disc removal. The complications caused by iatrogenic foreign bodies are well known, but cases are rarely published because of the medico legal implications [2], early identification and removal of a foreign body can prevent hazardous and detrimental complications [3]. However in a few cases, surgeon's attempts might be successful but Most of the broken blades could not be retrieved during the initial surgery because it is lost in disc space and attempt to remove cause further descent of fragment so

procedure is terminated [1], this retained foreign body in the disc space may remain clinically silent [4] or migration of such foreign body during ambulation might have lead to hazardous complications [3] and removal of such sharp fragment to prevent further complications, another session is warranted usually [1], Literature regarding this issue is scarce, and there are no unique guidelines to address these complications. We are reporting a case in which scalpel blade broken during lumbar intervertebral disc removal and successful surgical retrieval of that tip of knife blade done in same sitting with the help of microscope under fluoroscopic guidance before any hazardous complication develop.

### Case summary

A 29 year male presented with complain of back pain for last 6 month and sudden weakness in bilateral lower limb with urinary and fecal incontinence for last 10 days. imaging confirm significant compression of thecal sac and B/L neural foraminas at L1/L2 vertebra level due to intervertebral disc herniation (Figure 1) hence L1 laminectomy and L1/L2 disc removal was planned, While removing the intervertebral disc the tip of no.

15 scalpel blade (Figure 4) snapped off and was jammed in the disc space, attempts to retrieve the tip resulted in a further descend of the knife into the disc space, fluoroscopy revealed that knife was still in the disc space (Figures 2, 3). Owing to the risk of migration further attempt of blind removal was stopped and by using microscope under fluoroscopic guidance we catch the tip and exteriorized successfully before any hazardous complication develop.



**Figure 1** – Saggital T2w MRI of dorso-lumbar region showing L1/L2 inter-vertebral disc protrudion with thecal sac compression



Fig 2; Intraoperative fluoroscopic AP view of lumbar spine showing tip of knife in disc space with marker hook seen right lateral and superior to knife



Fig 3: fluoroscopy lateral view dorsolumbar spine region showing tip of broken knife is seen in disc space with flat dissector present postero-superiorly as a marker



Fig 4: retrieved tip of knife

### Discussion

Among common complications that occur during intervertebral disc removal, retained foreign body like broken scalpel blade are rare, very few cases are reported in literature. First case series of four cases on Retained foreign body (broken knife) within the disc space and migration towards abdominal cavity and viscera was published by Amirjamshidi et al in 1994. The no 15 knife blade with narrow junction is more prone to break during cutting of firm and calcified annulus and posterior longitudinal ligament. The broken fragment may be seen within disc space and can be removed in same setting. However attempts to remove it, can cause further descent of fragment in deep disc space and fluoroscopy and better illumination is required for removal of such fragment ,if such facility in operative room is not available, surgeon should close the wound and refer the patient to center where these facilities are available. In that cases patient should be informed and kept under close observations. Retrieval of a broken knife blade buried in the intervertebral disc space can be a challenge and even impossible to achieve despite hours of attempts hence second surgery is recommended in most of case [1].

Migration these foreign bodies during intra-operative surgical manipulation or ambulation in postoperative period could lead to serious complications and the clinical manifestation of these foreign body depends upon their locations and vicinity to the vital structures, anterior migration of the knife could cause gut and retroperitoneal viscera injury or vascular complications like injury to large vessels, on the other hand posterior migration into the spinal canal could cause injury to spinal cord and neurological deficit [1, 3, 5].

Complications due to broken scalpels and migration into the blood circulation or heart has been described by Herbert De Praetere et al (5). A broken sharp scalpel left in an intervertebral space and slipped to pelvic cavity during an operation of intervertebral disc also reported by LE wang et al [6]

In our case we need to respond the question whether the object should be retrieved or not?, conservative treatment is an option in asymptomatic foreign bodies without associated risks, particularly if they are small, smooth, rounded, blunt and minimal contaminated and embedded in and paraspinal muscles. Patients in whom the blade is within a collapsing disc space or is pointing towards the vertebral body secondary intervention can be postponed [1]. Intervention is necessary if symptomatic, irrespective of their location or asymptomatic patients with sharp foreign body with associated risk factors and possible complications [5].

Owing to the risk of hazardous complications, removal was the only option in our case and blind procedure was not appropriate due to the nature of the object. Therefore successful localization under

fluoroscopic guidance and removal of tip of knife was done with the help of operative microscopic in our patient in same sitting.

### Conclusion

Because of the potential hazards of migration and late serious complications, removal of sharp retained fragment in same or another session is recommended and we have to be cautious while using 15 no surgical knife in narrow disc space.

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