

## Original Article

# Management of Postoperative Discitis Following Lumbar Discectomy: Experience of 23 Cases

Alam MS<sup>1</sup>, Haroon K<sup>2</sup>, Quddus GMR<sup>3</sup>, Farzana T<sup>4</sup>, Kaisar K<sup>5</sup>, Hossain SZ<sup>6</sup>, Raihan MF<sup>7</sup>, Hasan MM<sup>8</sup>

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**Contribution of Authors:** Principal Investigator- Dr. Md. Shafiu Alam

**Manuscript preparation-** Dr. Kaisar Haroon, Dr. GM Ruhul Quddus

**Data collection-** Dr. Tayseer Farzana, Dr. Khaled Kaisar

**Editorial formatting-** Dr. Syed Zakir Hossain, Dr. Md. Motasimul Hasan

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### Abstract

**Background:** There is no established protocol for the treatment of postoperative lumbar discitis. There are still so many controversies regarding the treatment of postoperative discitis.

**Materials and Methods:** A total of 23 cases of postoperative discitis were treated from July 01, 2018 to June 30, 2021 for a period of 3 years. Initially all the patients were treated conservatively with complete bed rest, antibiotic therapy and analgesics. Most of the patients were improved clinically but who did not respond to conservative treatment for at least 4 weeks were treated surgically.

**Results:** Out of 23 patients, 11 (48%) patients showed significant clinical improvement after 4 weeks of starting treatment. 12 patients who failed to improve by conservative treatment were selected for surgical treatment. Among them in 5 (22%) patients only surgical debridement were done and in remaining 7 (30%) patients surgical debridement and posterior fixation were done. Most of the patients were improved by conservative treatment and among two groups of surgical treatment the fixation group showed early clinical improvement.

**Conclusions:** Early diagnosis and appropriate management is the key for effective treatment of postoperative discitis. Conservative management leads to an excellent result in majority of cases. Surgical intervention with or without posterior fusion is helpful when conservative treatment fails.

**Keywords:** Postoperative discitis, conservative treatment, surgical treatment.

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### Introduction:

Discitis is defined as the inflammation of intervertebral disc and adjacent vertebral bodies due to infective cause. Postoperative discitis after lumbar discectomy is not uncommon. The average incidence is about 1% after simple discectomy<sup>1</sup>. It comprises superficial and deep infections and was first described as a clinical

entity by Turnbull in 1953<sup>2</sup>. The possible cause may be haematogenous spread or direct inoculation of virulent organisms during the surgery<sup>3</sup>. Primarily it involves the nucleus pulposus with secondary involvement of the cartilaginous endplate and vertebral bone. Usually patients are present with severe low back pain with radiation, muscle spasm and fever. It

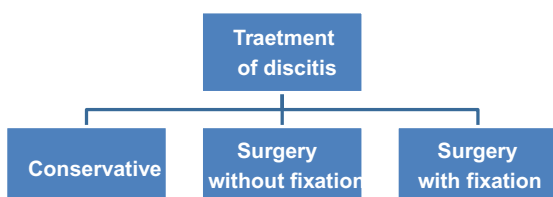
1. Dr. Md. Shafiu Alam, Associate Professor, Dept. of Gamma Knife, National Institute of Neurosciences and Hospital, Dhaka, Bangladesh.
2. Dr. Kaisar Haroon, Assistant Professor, Dept. of Neurosurgery, National Institute of Neurosciences and Hospital, Dhaka, Bangladesh.
3. Dr. GM Ruhul Quddus, Assistant Professor, Dept. of Ortho-surgery, National Institute of Traumatology and Orthopaedic Rehabilitation Hospital, Dhaka, Bangladesh.
4. Dr. Tayseer Farzana, Consultant, Dept. of Radiology & Imaging, Popular Diagnostic Center, Mirpur Branch, Dhaka, Bangladesh.
5. Dr. Khaled Kaisar, Assistant Professor, Dept. of Anaesthesiology, National Institute of Traumatology and Orthopaedic Rehabilitation, Dhaka, Bangladesh.
6. Dr. Syed Zakir Hossain, Assistant Professor, Dept. of Orthopaedic Surgery, Dhaka Medical Collage Hospital
7. Dr. Md. Farid Raihan, Medical Officer, Dept. of Neurosurgery, Bangabandhu Sheikh Mujib Medical University, Shahbag Dhaka
8. Dr. Md. Motasimul Hasan, Assistant Professor, Dept. of Neurosurgery, Dhaka Medical College & Hospital.

**Address of Correspondence:** Dr. Md. Shafiu Alam Associate Professor, Dept. of Gamma Knife, National Institute of Neurosciences and Hospital, Dhaka, Bangladesh. Tel: 01711567358, Email: dr\_chapal@hotmail.com

is one of the worst complications following lumber disc surgery<sup>4</sup>. The aim of this study was to see the different treatment option and their outcome.

### Treatment Option

The mainstay of discitis treatment is a combination of complete bed rest, prolonged administration of antibiotics, analgesics and other symptomatic treatment. Surgical intervention is necessary in patients failing conservative treatment<sup>5</sup>.



### Conservative treatment:

Empirical intravenous antibiotic treatment was started immediately after the diagnosis and the patient was put on complete bed rest. Pain was treated with analgesics and patients learn to move as little as possible. The prolonged treatment course and the considerable pain and immobility can lead to situational depression that should be treated if present<sup>6</sup>.

All patients were followed by serial blood investigations, including complete blood count, erythrocyte sedimentation rate (ESR), and C-reactive protein (CRP). X-Ray of the lumbosacral spine was done in all cases and MRI of the lumbosacral spine was done only in selected cases<sup>7</sup>. The conservative treatment was evaluated by clinical and laboratory parameters at 4 weeks, and patients with improved symptoms and laboratory findings continued to be managed conservatively. The patients who failed to improve by conservative treatment were selected for surgical treatment. The duration of intravenous antibiotic therapy was 2 weeks in responders and additional 4 weeks of oral antibiotic treatment was given in patients who response to conservative treatment.

### Surgical treatment:

The indications of surgical treatment were failure of medical treatment, accumulation of pus and

destructions of vertebral bodies<sup>8</sup>. There were two modes of surgical management. One was debridement of wound, drainage of pus and irrigation with normal saline and another one was debridement, irrigation by normal saline and posterior fixation of the vertebral bodies by pedicle screws and rods. The antibiotics were given according to culture report and duration for 4-6 weeks. The advantage of posterior fixation is immediate relief of pain and early mobilization of patient.

### Materials and Methods

We conducted a retrospective, cross-sectional study in the Department of Neurosurgery, National Institute of Neurosciences and Hospital, Dhaka, Bangladesh. The study period was from July 01, 2018 to June 30, 2021 for a period of 3 years. Total 23 patients with the diagnoses of post operative discitis were included in this study. The diagnoses were made by typical clinical features, biochemical marker (CBC, High ESR and CRP) and radiological findings. Informed written consent of patients or their relatives were taken along with Institutional Approval for publication of their data. All attempts are made to keep the identity of patients undisclosed.

All patients were followed up at 4 week, 6 week, 3 months and 1 year. The clinical outcome was assessed by Visual Analog Scale (VAS). The biochemical and radiological assessment were also done.

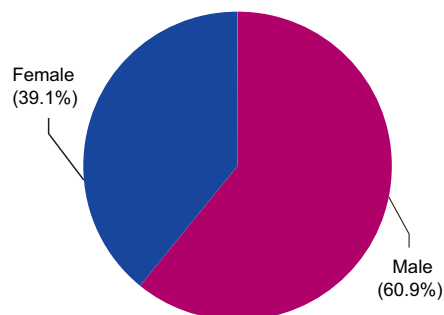
### Results

Most of the patients of postoperative discitis were from 4<sup>th</sup> and 5<sup>th</sup> decades of life (Table-1). Male were more sufferer than female. The Male: Female was 3: 2 (Figure-1). About half (48%) of the patients were improved by conservative treatment. 5 (22%) patients were treated by surgical debridement and irrigation of the wound without any fixation. Remaining 7 (30%) patients were treated by surgical debridement and posterior fixation by pedicle screws and rods (Table-2). The clinical outcome of the different modalities of treatment was assessed by Visual Analog Scale (Figure-2). The conservative group showed significant clinical improvement after 4 week and complete recovery of pain within 6 week to 3 months. The radiological evidence of fusion of adjacent vertebral bodies was found in MRI (Figure-3). The surgical treatment without fixation showed clinical improvement from 3 months and complete recovery of pain within 6

months to 1 year. Whereas the surgical treatment with fixation showed significant clinical improvement within 6 week and complete recovery of pain within 3 to 4 months (Table-3).

**Table-I**  
*Age distribution of the patients*

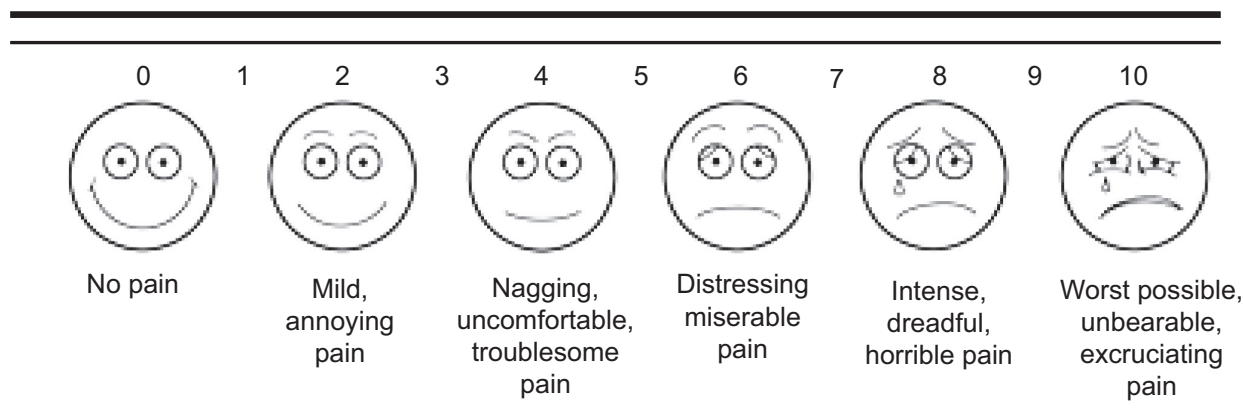
Age (Years)	No. of Patients	Percentage
01-10	00	00
11-20	00	00
21-30	3	13
31-40	3	13
41-50	8	35
51-60	5	22
61-70	4	17
Total	23	100



**Fig.-1:** Sex distribution of the patients

**Table-II**  
*Management types of the patients*

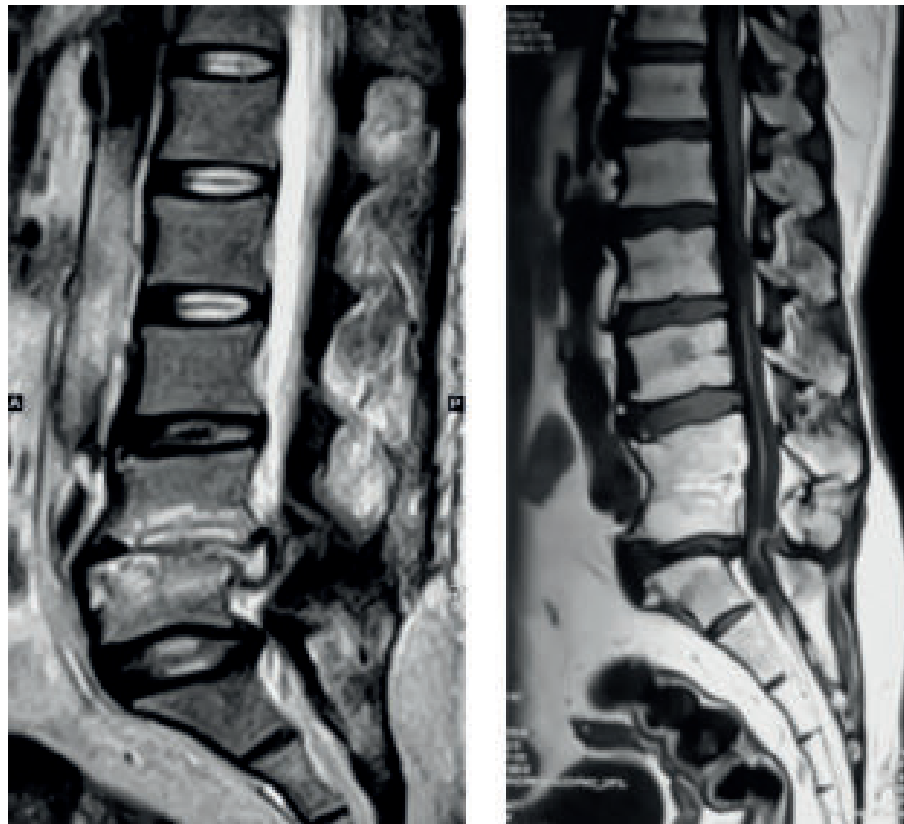
Type of treatment	No. of Patients	Percentage
Conservative	11	48
Surgery without fixation	5	22
Surgery with fixation	7	30
Total	23	100



**Fig.-2:** Visual Analog Scale

**Table-III**  
*Clinical outcome of treatment (Score of Visual Analog Scale)*

Type of treatment	At diagnoses	4 Weeks	6 Weeks	3 Months	1 Year
Conservative	9-10	2	1	0	0
Surgery without fixation	9-10	8	4	2	0
Surgery with fixation	9-10	8	2	1	0



Before treatment

After treatment

**Fig.-3:** Conservative treatment of discitis (Showed fusion of vertebral bodies)

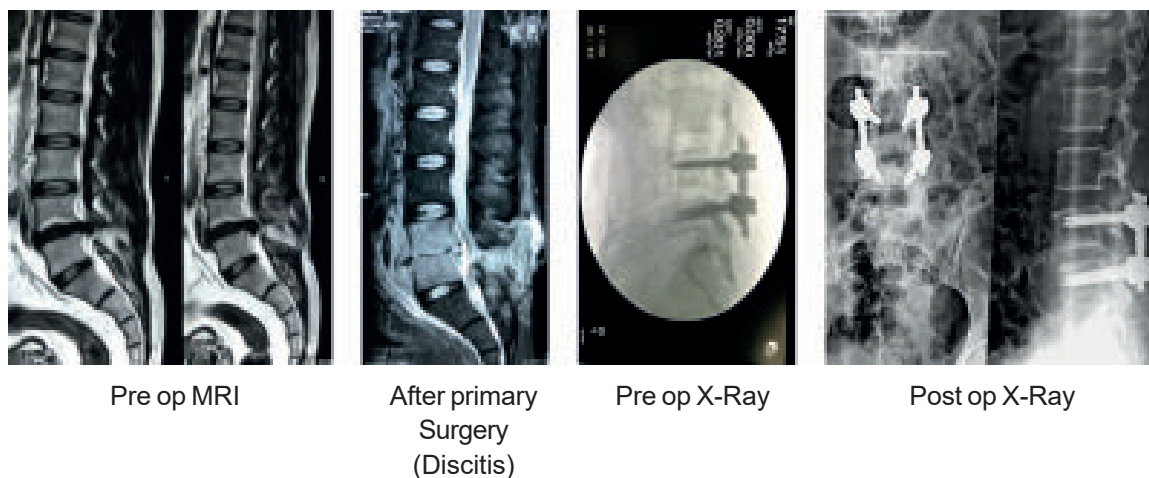


Pre op MRI

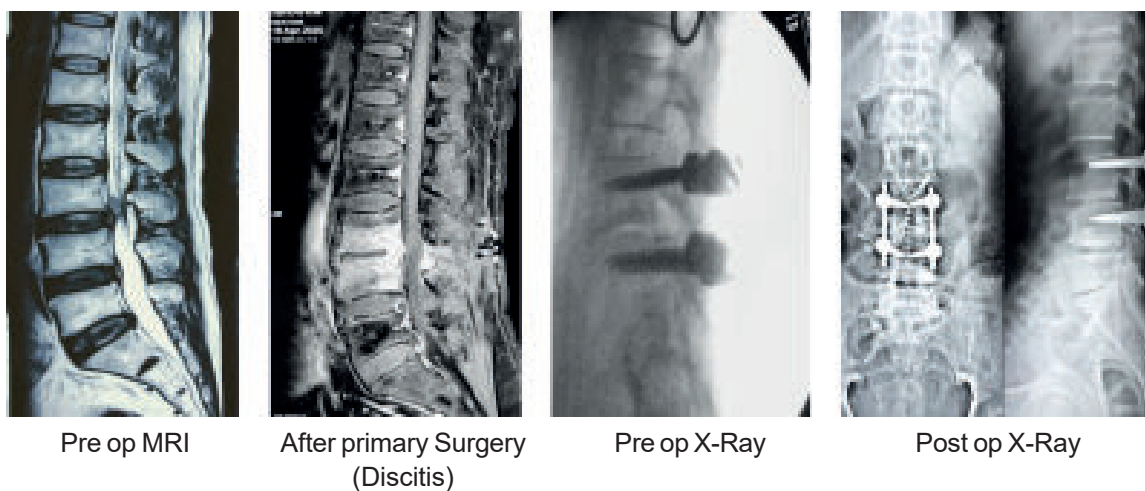
After primary Surgery (Discitis)

Post op MRI

**Fig.-4:** Surgical treatment without fixation



**Fig.-5: Surgical treatment with fixation**



**Fig.-6: Surgical treatment with fixation**

### Discussion

Postoperative discitis is considered to be a serious complication of lumbar disc surgery. It can be septic or aseptic but recent data suggest that postoperative discitis is mainly bacterial<sup>9</sup>. The majority of surgeons are of the opinion that it results from direct inoculation of an offending pathogen into the avascular disc space<sup>10</sup>. In 2003, Bavinski et al. reported a series of 17 patients with septic postoperative spondylodiscitis, who were treated by early microsurgical removal of the infected necrotic tissue, irrigation of the disc space, and application of a closed suction-irrigation system, specific antibiotic therapy and early mobilisation in a light cast corset.

Antibiotics were first administered intravenously for three to four weeks and next two to three months

orally. With this management, they obtained excellent or good clinical long-term results in 82% of the patients whereas 18% had poor results<sup>11</sup>. Most of the patients of postoperative discitis could be managed conservatively with immobilization, analgesic along with intravenous antibiotic therapy<sup>12,13</sup>. In our study 48% patients treated conservatively and 52% treated surgically. We prefer surgical debridement with or without fixation using pedicle screws and rods in all medically resistant cases. Although some authors successfully advocate the use of closed suction irrigation device along with the primary debridement in acute cases<sup>14</sup>. Fixation is advocated as instability cannot be assessed properly in these patients because of severe pain and muscle spasm. Studies have shown that instrumentation after radical debridement will not increase the rate of recurrent

infection<sup>15, 16</sup>; rather it immediately stabilizes the affected segment and promotes accelerated healing<sup>17</sup>. All patients had significant pain relief in the immediate postoperative period and became ambulatory within 2 weeks postoperative day.

### Conclusions:

Postoperative discitis is a rare but serious complication of lumbar disc surgeries. Discitis should be suspected in all patients with unexplained persistent back pain beyond 2 weeks of surgery or any other exaggerated symptoms. Careful evaluation is required in such cases. Early diagnosis and appropriate management lead to a good prognosis. Conservative treatment with complete bed rest and proper antibiotic therapy itself is the main stay of management in majority of cases. Surgical treatment including debridement, fixation and fusion is required if conservative management fails. The prognosis of discitis is good in most cases without major complications.

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