

# MANAGEMENT OF POSTOPERATIVE DISCITIS AFTER LUMBER DISCECTOMY

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## ABSTRACT

**Objective:** To analyze patients with postoperative discitis and their management

**Material And Methods:** This observational study was conducted at the department of Neurosurgery, Post-graduate medical institute, Lady Reading Hospital Peshawar from Jan 2010 to December 2012. A total of 792 consecutive patients who undergone lumbar discectomy were included in the study irrespective of their age and gender. The patients were assessed postoperatively for discitis up to 12 weeks. Those who developed discitis were managed and followed up to 6 months in addition.

**Results:** We had total 792 patients who underwent lumbar discectomy of which 24 (3.03%) developed discitis. There were 62.5% males and 37.5% females. Age of the patients ranged 21-64 years with the mean age of 39.8 years. Most of the patients presented within 6 weeks after surgery. ESR, C-reactive proteins and MRI lumbar spine were done in all 24 (100%) patients. Majority (70.8%) of patients with discitis was treated conservatively and the rest 29.2% needed exploration. All these patients had posterior exploration of which 5 (20.8%) patients needed transpedicular fixation (TPF) and 2 (8.3%) patients only debridement and lavage of the wound.

**Conclusions:** Postoperative discitis is comparatively a rare complication after lumbar discitis and can be treated conservatively in most of the cases. Operative intervention is necessary in patients failing conservative treatment.

**Key Words:** Disc space infection, discitis, lumbar discectomy, postoperative discitis

## INTRODUCTION

Disc space infection is a significant complication after lumbar discectomy and is associated with significant morbidity, increased cost, and poor long-term outcome. Postoperative discitis (POD) was first described by Turnbull in 1953<sup>1</sup>. It is controversial whether discitis can be caused by an aseptic or infectious process<sup>2</sup>. The overall incidence of postoperative lumbar discitis is estimated to be less than 1% (ranging from 0.2% to 2.75%)<sup>3,4</sup>. Staphylococcus is the most common organism which causes pyogenic discitis, followed by aerobic gram negative bacilli and rarely fungal infections<sup>4,5</sup>. The diagnosis is made on the basis of clinical features as increasing low back pain, raised Erythrocyte sedimentation rate (ESR), C-reactive proteins and Magnetic Resonance Imaging (MRI) findings. These conditions can be treated with prolonged use of specific antibiotics given for 6 to 8 weeks and or surgical treatment<sup>6</sup>.

Surgery is indicated in those patients whose infection has progressed on MRI despite appropriate antibiotic therapy, with deformity due to progressive destruction of the vertebral bodies, or with severe pain

or neurological deficits due to progression of the infection into the spinal canal<sup>7</sup>. Rarely anterior but mostly posterior approaches for debridement and fusion may be adopted<sup>7,8</sup>.

The aim of this study was to describe the cardinal clinical features of this usually missed condition and to support re-exploration rather than prolonged conservative treatment.

## MATERIAL AND METHODS

This observational study was conducted at the Department of Neurosurgery, Postgraduate Medical Institute, Lady Reading Hospital, Peshawar from January 2010 to December 2012. We included patients of both genders irrespective of their age who undergone single level lumbar discectomy and developed postoperative discitis and excluded those patients with redo surgery for disc herniation or more than one level discectomy. After getting approval from the hospital ethical committee to conduct the study and taking informed consent, the medical record of patients who underwent single level lumbar discectomy was evaluated. The patients were followed for 12 weeks postoperatively for features of discitis. The diagnosis was made on the basis of clinical features (as unusually severe back pain), raised ESR (>20mm hg/hr), raised C-reactive proteins and MRI findings (hypo intense on T1 and hyper intense signal changes on T2 weighted images). All information was entered into a proforma especially designed for this purpose. The data was analyzed by statistical program SPSS version 11.

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## RESULTS

During three years of study 792 patients underwent lumbar discectomy of which 24 (3.03%) developed postoperative discitis. The age of the patients ranged from 21 to 64 years with the mean age of 39.8 years. There were 15 (62.5%) male and 9 (37.5%) female with male / female ratio of 1.6: 1 as given in table 1. Duration between surgery and diagnosis of discitis ranged between 2-12 weeks but mostly within 6 weeks as given in table 2. Four (16.6%) patients had diabetes. In all those clinically suspicious of discitis, ESR, C- reactive proteins and MRI lumbar spine were done. Plain x-ray was done in 7 (29.2%), WBC in 6 (25%) and CT scan was done in two (8.3%) cases. Seventeen (70.8%) patients were treated conservatively with bed rest and antibiotics and 7 (29.2%) needed exploration with antibiotics as mentioned in table 3. All these patients had posterior exploration of which 5 (20.8%) patients needed transpedicular fixation (TPF) and 2 (8.3%) patients only debridement and lavage of the wound.

## DISCUSSION

**Table 1: Gender distribution**

Gender	Number of pts	Percentage	Ratio
Male	15	62.5%	1.6
Female	09	37.5%	01

**Table 2: Duration of symptoms**

Duration of symptoms	Number of pts	Percentage
<2 weeks	12	50%
2-6 weeks	10	41.7%
6-12 weeks	02	08.3%
>12 weeks	0	0

**Table 3: Treatment**

Treatment	Number of pts	Percentage
Conservative	17	70.8%
Surgery	07	29.2%
Transpedicular fixation	05	20.8%
Debridement	02	8.3%

Discitis is considered to be a serious complication of lumbar disc surgery. It can be septic or aseptic but recent data suggest that post operative 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>9,10</sup>.

The incidence of infection varies from 0.21% to 3.6% in association with all surgical procedures<sup>4,11</sup>. In some studies the infection rate is 4.8%<sup>12</sup>. While in other study it is lower (0.1%)<sup>13</sup>. In our study 3.03% patients had

postoperative discitis. The higher infection rate in our study could be because that our local theatre facilities are below European standards and, from all points of view, also the personal hygiene of our patients can be poor<sup>4</sup>.

We had postoperative discitis more in male (62.5%) than female (37.5%) and the mean age of the patients was 39.8 years. Other studies have also published that discitis is more common in male than female. In a study Hamdan TA<sup>4</sup> studied 35 patients with postoperative discitis 26 were male and 9 female with the mean age of 44.5 years.

Most of the patients in our study had no known risk factors except that 16.6% of our patients had diabetes mellitus. Diabetes is an important risk factor for postoperative discitis. Piotrowski et al.<sup>14</sup> found that 26% of patients with postoperative Spondylo-discitis had diabetes. The incidence of diabetes among all surgical patients is 6.8%<sup>4</sup>.

Usually postoperative symptoms appear between six days and six months after surgery. All of our patients presented within 12 weeks of surgery. About 50% of our patients presented within 2 weeks and 91.7 % in 6 weeks of surgery. Saumyajit Basu and colleagues<sup>9</sup> had comparable results. They studied 17 patients with discitis and most of them presented within 4 – 5 weeks and non after 12 weeks.

On clinical suspicion we did ESR, C-reactive proteins and lumbar MRI in all the patients. In which ESR and C- reactive proteins was raised and MRI showed hypo intense on T1 and hyper intense on T2 signal changes in the involved disc spaces to confirm the diagnosis of discitis. ESR not only helps in the diagnosis but also decreasing ESR tells us the positive response to treatment<sup>15,17</sup>. Plain radiograph was taken in 7 (29.2%). CT scan in 2 (8.3%) and white blood cell count was done in 6 (25%) patients. This is because that CT scan, plain x-ray and WBC count may appear normal in early stages of discitis and have limited role in the diagnosis<sup>18</sup>.

We subjected all patients to conservative treatment with bed rest and broad spectrum antibiotics. The responders to this conservative treatment (70.8%) were continued on conservative treatment for two months. The remaining patients did not respond to conservative treatment and undergone surgery, either transpedicular fixation (20.8%) and debridement (8.3%). Followed by antibiotics for 8 weeks. Whether surgery or conservative treatment should be preferred the results vary. In a study of 35 patients only six patients improved on conservative treatment, the other 29 patients were re-explored after poor response to conservative treatment and concluded that early re-exploration is superior to prolonged conservative treatment<sup>4</sup>. While in another study of 17 patients with postoperative discitis, the conclusion was that majority do well with conservative treatment. Surgical management in the form of transpedicular fixation and

debridement, when required, gives excellent results. Here the results are comparable to our study<sup>9</sup>.

## CONCLUSION

Postoperative discitis is comparatively a rare complication after lumbar discitis. The diagnosis is made on clinical suspicion, raised ESR, C-reactive proteins and signal changes in disc spaces on MRI. In the majority of patients, antibiotic treatment along with immobilization has been shown to produce good results. Operative intervention is rarely necessary in patients failing conservative treatment.

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