

Post Operative Discitis- A Review of 10 Patients in A Tertiary Care Neurosurgical Unit.

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Abstract:

Background: Postoperative discitis is an uncommon complication of spine surgery with estimated incidence rate usually less than 1%. It is defined as primary infection of nucleus pulposus with secondary involvement of cartilaginous end plates and adjacent vertebral bodies following lumbar disc surgeries². Early diagnosis based on clinical, laboratory, imageological findings and identification of causative agent and appropriate management of discitis is essential to reduce morbidity. The aim of this study was to identify the associated risk factors, most common level of discitis and outcome of conservative management in cases of post operative discitis of single level discectomy.

Materials & Methods: The study was carried out retrospectively over a period of 6 months from Jan 2014 to Dec 2015. Total 192 cases were operated electively for single level lumbar spine disorders. Post op discitis was established by clinical, laboratory & radiological findings.

Results: During the study period 192 single level discectomies were performed. Out of 192 patients 10 patients (5.2%) were suffered from discitis. The mean age of patients of postop discitis was 44 years with 4 women and 6 men. Among these 10 patients 3 were diabetic under good glycemic control. Most common clinical presentation is moderate to severe low backache. Out of 10 patients 7 patients corresponds to L4/L5 level. After 6 weeks of antibiotic therapy (3 weeks i.v.+3 weeks oral) with complete bed rest all patients were improved symptomatically. After 6 months of follow up all patients were able to carry on their daily activities.

Conclusions: Post operative discitis is an uncommon but serious complication of disc surgeries. Early diagnosis and appropriate antibiotic therapy along with immobilisation is essential in the management.

Keywords: C Reactive protein, Magnetic resonance imaging(MRI), Post op discitis.

I. Introduction

Post operative discitis first case reported in 1953 by Turnbull³. It is defined as inflammation of end plates of vertebra and infection of inter vertebral disc space after discectomy. The infection can spread either from patient skin due to aseptic precaution or hematogenous spread from Gastrointestinal tract / urinary tract⁴. Sometimes the source remain unknown. Post operative discitis usually noticed from 4 days to 1 month after spine surgery. Usually these patients presented with severe low backache with/without radiculopathy. Raised ESR and C reactive protein will be contributory for diagnosis but MRI is the investigation of choice.

II. Material & Methods

The study was carried out retrospectively over a period of 1 year. Total 192 patients were included in this study who underwent single level lumbar disc surgery. Among these 192 patients 10 patients were diagnosed with postoperative discitis. We reviewed the medical records and management of this particular post operative discitis patients. Descriptive analysis was provided in table 1

Patient characteristics: There were 6 males and 4 females with an average age of 44 years. Out of 10 patients who suffered from discitis 7 belongs to L4/L5 level. The most common symptom was low backache which was worsened with movements. 2 patients suffered from fever and 3 patients had associated radiculopathy along with backache.

Risk factors: Out of 10 patients 2 were chronic smokers, 3 had obesity, 3 patients had diabetes mellitus with good glycemic control.

Laboratory analysis: All 10 patients were investigated for ESR, C Reactive protein and Total leucocyte count. Out of 10 patients 2 had raised leucocyte levels, 6 had raised ESR (>25 mm/hr). Interestingly all patients had raised C reactive protein levels (>12 ng/l) and one patient had blood culture positive for staphylococci.

Imageology: X rays done for all cases who suffered from discitis to see the reduction in disc space and end plate changes. MRI was the investigation of choice for detection of changes in postop discitis. T1, T2 Weighted images will be helpful to see the contour irregularities of vertebral end plates at the level of operated disc, changes of edematous type in adjacent vertebral bodies. Contrast will be helpful to see the extension of discitis into posterior para vertebral muscles, anterior epidural & psoas muscles. Follow up MRI done after 6 months.

Treatment: All patients were readmitted after initiation of symptoms and advised complete bed rest for 3 months. Total 6 weeks of antibiotic therapy (3weeks iv + 3weeks oral) along with limited analgesics given for all patients.

Antibiotic protocol: i.v Linezolid/Vancomycin+amikacin+ornidazole

Oral Linezolid+ofloxacin+ornidazole.

After 2 weeks of initiation of therapy showing decreased levels ESR and c reactive protein. At the end of 6 weeks antibiotic therapy, patients had symptomatic relief. Psychological support given to all patients. At the end of 6 months follow up all patients were completely symptom free and able to do their daily activities.

III. Discussion

Post operative discitis is an uncommon entity after spine surgery which can be either septic or aseptic cause^{5,6}. The incidence of discitis varies from 0.21 to 3.6% as per existing literature but in the present study it was little higher side(5.2%)⁷. In present study most of the discitis patients corresponds to 32 to 68 yrs age group and majority are male preponderance(1.5:1). The period between surgery and onset of symptoms was 4 days to 1 month which was as similar as existing literature. Clinical features in most of the patients in present study was similar to existing literature^{8,9}. In present study discitis patients presented with severe to moderate intensity low back ache with or without radiculopathy, muscle spasm & fever. 3 of our patients were diabetic, but Piotrowski et al found that 26% of patients with post operative discitis had diabetes.

Early diagnosis of discitis usually done on the basis of clinical, laboratory and imageological findings. Elevated levels of ESR & C- reactive protein are suggestive of discitis but not confirmatory^{10,11}. Usually CRP elevated until 10 th post operative day, so any patient postoperatively unexpected rise in CRP beyond 2 weeks should suspect postoperative discitis. Some studies suggest CRP is a most sensitive indicator for diagnosis of post operative discitis¹². In the present study 20% patients had raised TLC levels, 60% had raised ESR and 100% had raised CRP levels. Present study also suggesting raised CRP may be a sensitive indicator for diagnosing postoperative discitis.

MRI is the best investigation of choice for accurate diagnosis of postoperative discitis which shows florid inflammatory signs with granulation tissue¹³. Contrast will be helpful to see the extent of discitis. Some studies suggesting percutaneous endoscopic/CT guided biopsy and culture will be helpful in diagnosis and management¹⁴. In present study all patients were underwent MRI for diagnosis and no patient had biopsy. In literature most of the studies showed staphylococcus aureus was the most common pathogen identified in the cultures¹⁵. In present study antibiotic treatment was started in all cases along with bed rest and analgesics and showed reduction in CRP levels along with dramatic relief of symptoms at the end of 6 weeks and returned to daily activities at the end of 6 months follow up. In literature no standardized management protocol for post operative discitis¹⁶. We suggesting complete immobilisation and 6 weeks of antibiotic therapy is essential in the management of post operative discitis. In literature some authors suggesting surgical debridement and instrumentation may be needed in few cases where conservative management failed^{17,18}. In present study we did not encounter that problem and all were improved clinically with conservative management only and returned to their daily activities at the end of 6 months follow up.

IV. Conclusion

Post operative discitis is an uncommon but serious complication after disc surgery. It should be suspected on clinical basis along with raised CRP levels. MRI is the investigation of choice for diagnosis of post operative discitis. Absolute bed rest and appropriate antibiotic therapy(atleast 6 weeks) is the main stay in the management of post operative discitis. The prognosis of post op discitis is good with conservative management in most of the patients without any complications.

Table 1: Descriptive analysis of study participants(n=10)

Patients	Number(Frequency)
Age	
Median	44
Range	32-68 yrs
Sex	
Male	6(60%)

Female	4(40%)
Level of initial surgery	
L3-L4	1(10%)
L4-L5	7(70%)
L5-S1	2(20%)
Clinical presentation	
Low backache	10(100%)
a) Without radiculopathy	7
b) With radiculopathy	3
Fever	2(20%)
Parasthesias	1(10%)
SLR positive	6(60%)
Muscle spasm	6(60%)
Risk factors	
Smoking	2(20%)
Obesity	3(30%)
Diabetes	3(30%)

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Legends : Post operative MRI images A) showing L4/L5 disc space infection with end plate and adjoining vertebral body changes and epidural and para vertebral collection(Day 14). B) showing resolution of infection after 3 months.

