RESEARCH ARTICLE

An experience with soft transforaminal lumbar interbody fusion in postoperative discitis not responding to conservative treatment

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Abstract

Objective: To determine the effect of soft Transforaminal Interbody Lumbar Interbody Fusion (sTLIF) in postoperative discitis not responding to conservative treatment.

Methods: This cross-sectional study was conducted in Department of Spine Surgery, CMH Rawalpindi from August 2016 to July 2019. Patients who underwent discectomy were observed and those presenting with postoperative discitis were included in the study. Pain was noted on visual analogue scale before and after the intervention and differences in two readings were noted. Data was collected on predesigned proforma. Statistical analysis was done on SPSS 20.0.

Results: Mean age of these patients was 45±12.34 years. The mean pain score on VAS before treatment was 8.33±0.65 and after treatment was 2±0.95. There was statistically significant reduction in pre-treatment and post-treatment pain on VAS (p=0.000).

Conclusion: Postoperative discitis is present among a small number of patients after spine surgery and pain is significantly reduced after the treatment of discitis with TLIF.

Keywords: Post-operative Discitis, Soft TLIF, VAS. (JPMA 71: S-32 [Suppl. 5]; 2021)

Introduction

Discectomy as treatment of disc prolapse is one of the most common surgery done in spine surgery. Postoperatively discitis is one of the dreaded complications of this surgery. It is described as vertebral end plate inflammation and inter-vertebral disc space infection after discectomy.[1] Although it occurs rarely it has been noticed in about <1% individuals[2] in west and 3.6% in India.[3] It may be localized to disc space or disseminate under the fascia and include discitis, epidural abscess, and spondylitis. Post-operative discitis often presents with severe back pain, muscle spasm, and fever. The causative organism can only be identified in half of patients.[4] Staphylococcus is the most common etiological agent of pyogenic discitis; followed by aerobic Gram-negative bacilli. Other rare cases were fungal: clostridium perfringens, Haemophilus species, and Aspergillus fumigates.[3]

The management of postoperative discitis starts usually with conservative method which includes antibiotics, lumbar corsette and bed rest.[5] In case of non-responders they are treated by debridement, pedicle screw fixation with or without bone grafting.[5,6]

Studies done in Pakistan have shown higher rates of postoperative discitis. Its frequency ranges from 4.4% to 15% in available data.[7,8] However Pakistani studies are available for only few patients and none of them have described outcomes of disease. Thus the objective of this study is to devise a protocol for management of discitis in our setup.

Patients and Methods

This study was conducted in Department of Spine Surgery, Combined Military Hospital Rawalpindi-a tertiary care hospital, from August 2016 to July 2019. Patients who underwent discectomy in lumbar spine in our hospital and later developed discitis were observed and included in study.

The symptoms of rest pain aggravated by movements and fever in postoperative patients were noted after one to two weeks of surgery. They had initial relief of sciatica and back pain in early post-operative period. The complete blood count, erythrocyte sedimentation rates and levels of C-reactive protein (CRP) were noted for every patient at the time of admission. X-ray lumbosacral spine anteroposterior and lateral view and MRI spine with contrast was performed. Discitis was considered when patients had symptoms, leukocytosis with neutrophilia and mostly raised ESR and increased levels of CRP. On X-rays disc space was reduced with or without erosion of end plates. On MRI hyperintensity of the disc on T2-weighted imaging, paraspinous or epidural

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inflammation/ abscess and contrast enhancement of the disc and adjacent bone marrow was observed. Blood samples were sent for culture and sensitivity (C/S) and results were noted. Antibiotics were given initially empirically (Injection Vancomycin 500milligram twice I/V and Injection Nezkil 600 milligram twice I/V) and later if required according to sensitivity. Antibiotics were given intravenously for initial two weeks and then for six weeks orally.

In case the patients did not respond to conservative treatment for one week they were offered surgery. After getting anaesthesia fitness they were shifted to the operation theatre next day. Under general anaesthesia they were placed prone over silicon pads. Area was cleaned, draped and wound opened, paraspinal muscles were retracted and complete laminectomy done. Pedicle screws were applied in adjacent vertebrae. Disc space was cleared of all necrotic tissue and washed thoroughly. Specimens were taken for C/S and histopathology. Bone graft was harvested from iliac crest and placed inside disc space and packed. Wound was washed again, Vancomycin was sprinkled, drain was placed and wound was closed. Patient was mobilized in bed the next day and was out of bed when pain free, usually on second or third day. Antibiotics were continued for eight weeks.

Pain was noted on visual analogue scale before and after the intervention and differences in two readings were noted. Data was collected on predesigned proforma.

Statistical analysis was done on SPSS 20.0. Results were described as percentage for categorical variables and as mean ± SD for continuous variables. Two sample t-test was performed for comparing means of pain before and after the intervention and p-value of <0.05 was considered significant.

Results

The number of discectomies performed during this time was 381. Out of these patients, only 12 cases developed post-operative discitis which did not respond to medical treatment and were subjected to sTLIF. Mean age of these patients was 45±12.34 years. There were 7 (58.33%) males and 5 (41.66%) females.

The mean duration of presentation after initial surgery was 2.0±0.5 weeks. Back pain was present in all patients (100%) but fever was present only in 5 (41.66%) patients. Mean ESR was 32.75±19.39 at 1 hour. Mean TLC count was 10.55±4.87/mm^3. MRI findings of typical discitis were present in all patients (100%). Culture and sensitivity showed no growth of organisms in 8 (66.7%), Staphylococcus aureus in 2 (16.7%), E. Coli in 1 (8.3%) and Pseudomonas aeruginosa in 1 (8.3%).

The mean pain score on VAS before treatment was 8.33±0.65 and after treatment was 2±0.95. There was statistically significant reduction in pre-treatment and post-treatment pain on VAS (p=0.001).

Discussion

Our study shows that discitis is present in a small number of patients after spine surgery. Multiple organisms can be isolated from almost less than half number of patients. However it can be treated well with surgery increasing the morbidity associated with the procedure.

All patients presented with back pain. This was also noted by Chang et al. as in their study, 90% patients complained of back pain and 40% patients with sciatica.[9] Khan et al. also reported back pain to be the most common symptom.[7] The culture and sensitivity reports showed no bacterial growth in 66.7% of patients in this study. These results are similar to previous studies reported in by Basu et al.[4] The most common organism found was Staphylococcus aureus which is similar to that reported in literature.[10] The frequency of discitis present in our study group is considerably higher than those in the west. This study shows the frequency to be 3.15% compared to <1% in the west.[2] However it is comparable to the study by Singh et al.[3] who had frequency of 3.6%. Discitis was much less than the results of the study conducted by Siddiqui et al.[8] and slightly less when compared to the results of the study by Khan et al.[7] This data shows that frequency of discitis varies among different study groups. It may be attributed to different sample sizes or may be dependent on the skill of the surgeon performing the spine surgery as well as postoperative care of the patients.

TILF was mainstay of treatment in our patients compared to conservative management which depended on the clinical status of the patients. However the recovery rate was similar to other studies reported in literature.[3-5,7-9] All these studies show that discitis can be treated with surgery. The mean pain score reported in this study is similar to those reported by Change et al. before and after the treatment.[9]

The study by Koutsoumbelis et al[11] identified four procedure-related risk factors: (1) long duration of surgery; (2) intraoperative blood loss/need for transfusion; (3) incidental dural tear and (4) >10 people in the operation theater (OT), specifically cautioning against unnecessary nurses. The previous studies have also identified increased operative time, multilevel surgery, revision surgery, and an increased number of people in the OT as important predisposing factors for

postoperative spinal infections.[12]

This study is one of few studies conducted in Pakistan. Although the frequency of discitis is much less as compared to studies conducted 20 years ago in Pakistan.[8] It is still a nightmare for spine surgeons. Disctis should be considered in any patient presenting with back pain after spine surgery. If not treated it may lead to deleterious outcomes for the patients. Further studies are needed in this regard to evaluate the exact incidence of discitis in patients after spine surgery in Pakistan.

Conclusion

Postoperative discitis is present among a small number of patients after spine surgery and pain is significantly reduced after the treatment of discitis with sTLIF.

Disclaimer: None.

Conflict of Interest: None.

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