ORIGINAL ARTICLE

Incidence and Management of Dural Tears in Degenerative Spinal Surgery

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ABSTRACT

Objects: *The purpose of this study was to study the incidence, results and treatment of Dural Tears sustained during operation on lumbar spine for degenerative spine diseases in peripheral teaching hospital.*

Study Design: *This was an observational descriptive study.*

Materials and Methods: *This study was conducted in the Department of Neuro Surgery Saidu teaching Hospital swat from Jan 2007 to Dec: 2010. During this period a total of 305 patients underwent spinal surgery were included in our study. Preliminary preoperative imaging and preparation was performed in these patients.*

Results: *A total of 305 patients including in this study. The male female ratio was 1:1.67% out of 305 patients primary surgery was performed in 238 patients while revisional surgery was perform in 67 cases. a total of 29 cases had dural tears, in 27 patients Dural tear was recognized preoperatively out of which 21 tears where repaired and 6 patients were treated conservatively. Conservative treatment was not successful in these 6 patients and they underwent Re exploration and repair. In 2 cases dural tears were diagnosed latter on due to CSF leakage in 1 case pseudomeningocele is 2nd cases conservative trial failed have both were reoperated for dural repair.*

Conclusion: *Dural tears is more common in revisional surgery and all Dural Tears should be repair.*

Key Words: *Dural Tears, Degenerative spinal surgeries, Dural Tears repair.*

INTRODUCTION

Dural tears is one of the common complication of degenerative spinal Surgery: Its prevalence has been reported to be 1.08% to 17.7%[1-2] depending on patient characteristics and surgical procedure. As reported in European study incidence of dural tear in surgery for spinal stenosis to be 8.5% while it is 13.2% in revisional surgery. Unrecognized or unrepaired dural tear can result in Cerebro Spinal fluid leak during the post operative period which may leads to Psuedomeningoceole and CSF Fistula and even menengitis.[3-4]

Patient with dural tear (DT) have been reported to have increased incidence of backache and headache as compared with mach cohart.[5]

Dural tear has been treated at different centers differently with variable result[3,8] and there is no effective and clinically applicable management algorithm for treating dural tears (DT).

The purpose of the study was to review the incidence, treatment and results of dural tears sustained during operation on lumbar spine in Peripheral teaching Hospital.

MATERIAL AND METHODS

This descriptive study was conducted in Saidu Teaching Hospital, Swat from January 2007 to December 2010, during this period all consecutive 305 patients underwent spinal surgery for degenerative spine diseases were included in this study.

Emergency de-compressive surgery, cervical spine surgery and traumatic spine surgery were excluded

from the study. All patients included in this study were examined by the consultant Neurosurgeons and resident Medical officer.

Pre operative imagining of the spine were performed with computerized tomography (CT) and Magnetic resonance Imagining (MRI). These patient were operated by senior neurosurgeon. The Type of procedure were recorded and all patients were followed up in Neuro Surgery Clinic for a period of 12th months.

RESULTS

Sex Incidence

A total of 305 patients were included in this study. The Male: Female was 114:191 (1:1.6).

Table 1: *Sex Incidence.*

Sex	No.	%
Male	114	37%
Female	191	67%
Total	305	100%

Age Incidence

The age range from 22 – 70 with median of 39 years.

Table 2: *Type of Surgery and Dural Tears.*

	Cases	Dural Tears	
		No.	%
Primary Surgery	238	16	6.7%
Revisional Surgery	67	13	19.4%
Total	305	29	100%

Type of Surgery and Dural Tears

Out 305 patients – 238 were operated primarily for lumber disc prolapse, spinal stenosis and spondlolishthesis, while 67 patient underwent revision surgery. Out of 238 patients who underwent primary surgical procedure the male: Female ratio was 84:154, while in revisional surgery the Male: Female ratio 30:37.

In 27 patients dural tears (DT) were recognized per-operatively with M:F ratio 13:14.

Dural Repair

Out of these 27 patients, dural tears (DT) were repaired primarily with 4/0 silk (non absorbable suture in 21 patients. While in 6 patients suturing was difficult and treated with spongostan and sub facial drain.

Table 3: *Dural Repair.*

Repair	No.	%
Primary Surgery for Repair	21	77%
Conservative trial and Surgery	8	23%
Total	29	100%

In 2 patients dural tears (DT) was not recognized per operatively one of them presented with CSF lockage and other one with Psudomenengoceole. These patients were treated conservatively for 10 days but they did not responded satisfactory so both were reopened and dural tears (DT) repaired with 4/0 silk.

DISCUSSION

A dural tears (DT) is one of the common iatrogenic complications of the spinal surgery. However in literature iatrogenic DT during spinal surgery is surprisingly rare. The treatment of this potentially complicated problem described has been in literature. But the descriptions were based on only few studies with relatively small number of patients.[6-8]

In our study a total 305 patients were included. The Male: Female 114:191. Out of the 305 patients 238 underwent In primary surgery for the degenerative spine diseases and in 67 patients revisional surgery were performed. The overall incidence of DT was 9.50%.

In primary Surgery dural tears (DT) were observed in 16/29 6.72%.while in revisional surgery the incidence of DT was 13/29 19.40%.

Our results were similar to TAFAZAL et al who reported the incidence of dural tear (DT) as 8.5% in patients undergoing surgery for spinal stenosis and 13.2 in revisional surgery.[9] How over Wang et al reported the incidence of dural tear (DT) to be 14%.[1]

Camissa et al reported the incident of dural tears (DT) 3.1% in their series of primary procedure and rate of 1.8% revisonal surgery.[7]

The signs and symptoms of dural tears (DT) were caused by persistent leaking of CSF. These tears were

usually recognized per operatively by clear CSF leakage and collapse of bulging spinal cord contour or post operatively by one of the complication of persistant CSF leakage like Head ache, Clear CSF discharge, Psudomenengoceole, CSF fistula and meningitis.[4-7]

In our studies, we recognized 27 (93.1%) DT per-operatively and 2 patients presented postoperatively with CSF leakage who develop Meningitis in 1 case and one psudomenengoceole in 2nd case. Non operative treatment of DT is not successful. Several methods of surgical repair of dural tears (DT) have been described in the literature. They included the primary repair, application of tissue sealants or blood patch, tissue grafting.[10]

In our study all DTs recognized per-operatively were repaired with 4/0 non absorbable suture and the wound was closed in layers with vicryle and prolene. In 23 Out of 27 patients 23/27 (85.8%) patients the primary repair was successful. Similar result dural tears (DT) repair have been reported by JEFFERY et al.[11]

In four 4 patients the primary repair of dural tears (DT) failed and they develop persistant head ache, phototopobia and vomiting with postural change. The 4 patients as well as those 2 patients develop complication due to unrecognized DTs were treated initially conservatively with bed rest, foot end elevation and prophylactic antibiotic, none of these patients responded satisfactorily to conservative treatment and the underwent re exploration and repair of the DT with suturing, spongotsan and sub facial vaccum drain.

CONCLUSION

Dural tears (DT) more common in revisional surgery than primary surgery.

Conservative treatment invariably fails to get the desired response.

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