ABSTRACT

Objective: To compare the results of Bassini vs Darn inguinal hernia repair techniques in terms of postoperative pain, infection rate, hospital stay, resumption of duty and recurrence.

Methods: A randomized controlled prospective comparative study of inguinal hernia repair was conducted in Combined Military Hospital Quetta, and Combined Military Hospital Rawalpindi from Jan 2001 till June 2004. Seventy-eight patients of both sexes between 20-60 years with primary inguinal hernia were included in the study. Patients with obstructed/strangulated and recurrent inguinal hernias were excluded. They were randomly assigned to group I having 42 (53.76%) patients treated by Bassini repair and group II, 36 (46.24 %) patients repaired with Darning technique.

Results: In group I, severe post-operative pain requiring intra-muscular analgesics occurred in 24 (57.14%) patients, infection occurred in 3 (7.14 %), mean hospital stay was 5 days (4-6 days), assumption of duties took 5-6 weeks and recurrence at the end of one year was 4.76%. In group II, severe postoperative pain requiring intra-muscular analgesics occurred
in 9 (25%) patients, infection occurred in one (2.8%), mean hospital stay was 4.5 days (4-5 days), assumption of duties took 4-5 weeks and recurrence at the end of one year was 0%.

**Conclusion:** Darn repair, though a difficult procedure is a better technique than simple Bassini repair with a low morbidity and recurrence rate. (Rawal Med J 2006;31:67-69)

**Key words:** Inguinal hernia, Darn repair, Bassini repair, hernioplasty, post operative complications

**INTRODUCTION**

Inguinal hernias, constituting 73% of all external hernias\(^1\)\(^-\)\(^2\) are a common clinical problem. Surgery is indicated in many hernias to prevent complications. These patients must be thoroughly evaluated before hernia repair.\(^3\) Fortunately, most inguinal hernias are repaired electively to prevent strangulation.\(^4\) Inguinal hernia repair is the most common operation undertaken in routine surgical practice with an annual incidence of 13 per 1000 population of all ages.\(^5\) The Dogma in France is to operate all inguinal hernias.\(^6\)

Gilbert in 1987 classified four basic techniques for hernia repair.\(^7\) These include pure tissue repair, combined tissue and prosthetic repair, pure prosthetic repair and Darn. Good results has been shown by Shouldice method but British method Nylon Darn shows effectiveness in preserving deep groin anatomy.\(^8\) Many surgeons use Darn as sole method of inguinal hernia repair.\(^9\) Better results are obtained with lichenstein (mesh) repair, but it is costly. Because of poor socioeconomic status, non-affordability of patients and non-availability of mesh in small cities Darn technique was chosen to ascertain its effectiveness, postoperative complications and recurrence.
PATIENTS AND METHODS

A randomized controlled prospective study of Darning versus Bassini repair with prolene-I was carried out in Combined Military Hospital (CMH) Quetta over a period of one and a half years from Jan 1998 to June 1999. Seventy-eight patients between 20-60 years of age with primary inguinal hernia (direct, indirect, unilateral or bilateral) were included in the study. Pre-operative investigations included blood complete picture, urine routine examination and chest radiography. In patients who were above 40 years of age, serum urea and electrolytes, blood sugar, X-Rays KUB and abdominal ultrasound were performed. All patients were operated electively.

Patients were randomly divided into two groups irrespective of their age and sex. In group-I Bassini repair (42 cases, 53.76%) and group-II Darn repair (36 cases, 46.24%) was performed using prolene-I as suture material. All patients received single dose of par-enteral ampicillin and gentamycin per-operatively. In early post-operative period, patients were assessed for pain, hematoma and wound infection. Seventy (89.76%) were operated under general anesthesia, 5 (6.40%) under spinal anesthesia and 3 (3.84%) were given local anesthesia. Patients were discharged from hospital on 3rd day of operation. Stitches were removed on 10th post-operative day on the average. All patients were seen in follow up at 1, 2, 6 and 12 months and were assessed for pain and recurrence. The results were analyzed using chi square test and p-values.

RESULTS

Out of 78 patients, 76 (97.44%) were males and 2 (2.56%) females. Ten (12.80%) patients had direct, 64 (82.08%) indirect and 4 suffered from bilateral hernias. After recovery from
the anesthesia, there was no general complication except urinary retention that was observed in one patient of group I.

Table 1. Pain score used in assessing postoperative pain

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Almost non</td>
<td>1</td>
</tr>
<tr>
<td>B</td>
<td>Less than average (discomfort)</td>
<td>2</td>
</tr>
<tr>
<td>C</td>
<td>Average (mild)</td>
<td>3</td>
</tr>
<tr>
<td>D</td>
<td>More than average (moderate)</td>
<td>4</td>
</tr>
<tr>
<td>E</td>
<td>Severe</td>
<td>5</td>
</tr>
</tbody>
</table>

Over all post-operative complications rate was 58% in group I and 30.56% in group II. In Group I, operative time was 45 minutes, post operative pain score was 4 (table 1), analgesic requirement was 3-4 doses of intramuscular diclofenac sodium, hematoma in 3 cases (7.14%), infection in 7.14% (table 2), hospital stay of 3 days, and 2 recurrences were observed in one year follow up. In Group II, operative time was 55 minutes, post operative pain score was 2, analgesic requirement was 1-2 doses of diclofenac sodium, hematoma in one case (2.38%), hospital stay of 3 days, infection rate of 2.38% and no recurrence in one year follow up. Overall p value was 0.00966. Follow-up at one year was 94% (73 cases) with recurrence rate of 4.76% for group I and 0% for group II. At one year follow up, 10% of patients were having discomfort in group I and 4.7% in group II.
Table 2. Early complications in two groups.

<table>
<thead>
<tr>
<th>No</th>
<th>Complications</th>
<th>BASSINI 42 (53.76%)</th>
<th>International Data</th>
<th>DARN 36(46.24%)</th>
<th>International Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Post-Op severe Pain requiring analgesia</td>
<td>24 (57.14%)</td>
<td>4%</td>
<td>09 (25%)</td>
<td>4%</td>
</tr>
<tr>
<td>2.</td>
<td>Hematoma</td>
<td>2 (4.76%)</td>
<td>0.6</td>
<td>01 (2.8%)</td>
<td>2%</td>
</tr>
<tr>
<td>3.</td>
<td>Urinary retention</td>
<td>1 (2.38%)</td>
<td>1%</td>
<td>0 (%)</td>
<td>5%</td>
</tr>
<tr>
<td>4.</td>
<td>Infection</td>
<td>3 (7.14%)</td>
<td>4%</td>
<td>1 (2.8%)</td>
<td>1%</td>
</tr>
</tbody>
</table>

**DISCUSSION**

The incidence of inguinal hernia is 73% to 84%. The male to female ratio in our study is 38:1 which contrasts with regional studies, with 57:15 from Nawabshah, 38:16 from Peshawar and 20:1 in UK. In Northern Jordan, the male to female ratio was reported to be 4.3:1 and 8.2:1. The lower incidence of female in our study may be because of our military setting and conservative social background. Increased incidence of inguinal hernia on right side is documented by several studies, but a 30% bilateral inguinal hernia is also reported. The objective in inguinal hernia repair is to provide a tension free repair whenever there is posterior inguinal wall weakness. The British method known as “Nylon Darn” has shown to be affective in preservation of deep groin anatomy.

Many surgeons use the Moloney darn as their sole method for inguinal hernioplasty while others hold the view that Bassini repair is the best method, if correctly performed. However, other methods like Shouldice and mesh implantation are also showing good
results, even better than Bassini, which is easier to perform by any junior surgeon, easier to teach, less time consuming but the disadvantage of this method is tension on suture line and increased recurrence rate.\textsuperscript{15} These problems of increased tension on suture line and increased recurrence rate, are overcome by tensionless repair,\textsuperscript{16, 17} use of prosthetic material or by darning. Darn repair is difficult to perform, more time consuming but can be used for primary (direct, indirect) hernias, hernias with weak posterior wall and recurrent hernias.\textsuperscript{18}

On the average patients were discharged on 3\textsuperscript{rd} post operative day. Early post-operative complications like pain, hematoma, urinary retention, infection rate were much lower in group treated with Darn repair. Most of the patients in Darn group assumed work earlier than Bassini group. Late complications, after 6 months and one year were also low. Our study was conducted on adequate numbers of patients with extremely good follow up at one year. In conclusion, Darn repair, although technically more difficult and time consuming, was better procedure than simple Bassini repair when compared in terms of postoperative morbidity and recurrence rate.

REFERENCES

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17. Ali M. Darning is safe and cheapest method. JPMI 2003;17:42-45