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TENSION-FREE MESH VERSUS NYLON DARN IN ADULT INGUINAL HERNIA REPAIR, A COMPARATIVE STUDY OF EARLY POSTOPERATIVE RESULTS

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Summary

This is a prospective study that was conducted at Basrah General Hospital from March 1999 to March 2001 to compare the mesh repair and darn repair in the treatment of inguinal hernia with regard to pain, length of disability and early complications. Ninety six patients were randomised into two groups, (A) repaired by polypropylene mesh (n=50) and (B) repaired by nylon darn (n=46). The age range was 18-82 years. There was no statistically significant difference between polypropylene mesh and nylon darn with respect to aforementioned parameters. It is concluded that mesh repair of inguinal hernia is a satisfactory method and its results can be improved with increased experience.

Introduction

Thousands of inguinal hernia are diagnosed and treated each year. The high incidence of this disease makes inguinal hernia repair the most frequent procedure in general surgery, accounting for 10-15% of all operations[1]. Imperfection in operative approach, bad tissue quality or quantity, abdominal tension or pressure, and the ever-present danger of infection are a few of the potential causes of failure that face a surgeon [2]. About 80-90% of the repairs are done in males, the most frequent site being the right indirect hernia [3]. Inguinal hernia repair has undergone various stages of development, depending on better understanding of the anatomy, the development of various sutures and synthetic materials, introducing laparoscopy and proper long term follow up. Now with the modern prosthetic materials and new surgical techniques it is possible to repair all types of hernias and recreate normal anatomic function of the abdominal wall without new tension between muscles [1,4,5].

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A nylon darn, originally described by Moloney et al, is a cheap and effective way of repairing a hernia. More recently the use of polypropylene mesh has become popular, largely because of excellent results reported by Lichtenstein et al [6].The aim of this study is to compare the two techniques in the treatment of inguinal hernia assessing pain, length of disability and early complications.

Patients and Methods

This prospective study was conducted at Basrah General Hospital from March 1999 to March 2001.Ninety six patients were randomised into two groups,(a)-repaired by polypropylene mesh (no.50) and (b)-repaired by nylon darn (46). Patients' ages ranged between 18 to 82 years. The study included unilateral, reducible primary hernias of men and women (Nyhus type 2, type 3a and type 3b). Patients with recurrent hernias as well as those with scrotal hernias were excluded from the study. After initial dissection of the hernia, the indirect sac was excised. The repair was then done using the darn or mesh repair. The nylon darn involved O nylon being placed from the conjoint to the inguinal ligament, in an interwoven fashion, without tension. The mesh repair involved polypropylene mesh being placed between the conjoint tendon and the inguinal ligament and secured with interrupted 2/0 polypropylene. The spermatic cord was then placed between the two tails of the mesh for creation of new internal ring.

Endpoints of the study were post-operative pain, length of disability (the time period from hospital admission to the resumption of normal work). Patients were then followed at one and four weeks by the same surgeon to check for early complications.

Pain scores were recorded at 24 and 48hours,and given a numerical value for statistical analysis: 1,none; 2,mild; 3, moderate; 4,severe; 5,unbearable.

Differences between the two surgical groups were measured with Chi square test. $P< 0.05$ was considered significant.

Results

Over a 24 months period, 96 patients (3 women, 93 men) were randomized to either the mesh group (n=50) or the darn group (n=46). The age of patients in mesh group was from 18-82 years, while in darn group was from 19-70 years. Right-sided hernias predominated 31 of 50 in mesh repair and 30 of 46 in the darn repair. Ten direct hernia were repaired with mesh and five direct hernia with nylon darn, while forty indirect hernia were repaired with mesh and the other forty indirect hernia with nylon darn. The median operation time in mesh group ranged from 45 to 70 minutes, whereas 35-65 minutes were needed in darn group.

The pain scores of patients at 24 hours and 48 hours show that the majority of patients in both groups fell into the mild – moderate range, none had unbearable pain as shown in Table I & II. There were no significant differences in pain scores at 24 and 48hours between nylon darn and mesh repair.

Oral analgesia (as diclofenac sodium 25 mg tab/ tid) was used in both groups for 2-3 days. The time for return to the usual activity was 10-15 days for mesh group and 21-30 days for darn groups.

Pain scores at 24 hours			
Pain	**score**	**Mesh repair**	**Darn repair**
None	1	8	3
Mild	2	20	18
Moderate	3	18	17
Severe	4	8	8
Unbearable	5	0	0
Total		50	46

Table I. Pain score after hernia repair with mesh and nylon after 24 hours.

Pain scores at 48 hours			
Pain	**score**	**Mesh repair**	**Darn repair**
None	1	12	10
Mild	2	25	23
Moderate	3	10	12
Severe	4	3	1
Unbearable	5	0	0
Total		50	46

Table II. Pain scores after hernia repair with mesh and nylon darn at 48 hours.

There was no statistically difference between the two groups in the rate of early complications after hernia repair as shown in table III.

Complication	Mesh repair	Darn repair
Haematoma	0	1
Seroma	1	2
Wound infection	0	2
Urinary retention	-	-
Nearalgia	0	1

Table III. Complications after hernia repair.

Discussion

The status of surgical treatment of inguinal hernia is such that all patients can expect a permanent cure. This possibility has become a reality because of an appreciation of the importance of the preperitoneal space and the timely introduction of prosthetic materials[5].

The results of this study showed that there was no statistically significant difference between polypropylene mesh and nylon darn with respect to operating time, postoperative pain and early complications. These findings were identical to other study[7], but in contrast to other study that suggest open mesh repair causes less postoperative pain and early complications[8]. This may be explained on the basis of the difference of personality and culture of the patients in different studies.

The length of time of disability was shorter in patients with mesh repair than in nylon darn. This difference may be explained by the absence of dissection of muscle in the groin and then tension free repair in mesh group. The absence of postoperative infection argues strongly against the reluctance to use synthetic material in hernia repair.

Our study shows that mesh repair of inguinal hernia is a satisfactory method and its results can be improved with increased experience.

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