Open Surgical Management of Incisional Hernia

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Citation

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Abstract

Objective: To study the effect of different surgical techniques and the outcome of treatment in a group of 68 patients with incisional hernias and different predisposing factors (age, sex and BMI).

Materials and Methods: Sixty-eight patients admitted to King Khalid Hospital, Al Kharj, Saudi Arabia over a period of 5 years (from January 2000 to December 2004) were included in this retrospective study. The predisposing factors, the surgical techniques and the outcome of treatment were determined by review of the medical records.

Results: Type of previous surgery and obesity were the predominant predisposing factors and recurrence was more common in the obese patients, especially those with post-operative wound infection.

Conclusion: Repair of incisional hernias still remains a challenge for the general surgeon and the surgical management has to be tailored to the individual patient.

INTRODUCTION

Incisional hernias represent one of the most frequent complications of abdominal surgery. Development of incisional hernias after abdominal surgery has been reported in 3.8-11.5% [1,2], ninety percent of them within three years of operation. The incidence depends on a number of factors including old age, male sex, obesity, bowel surgery, suture type, chest infection, wound infection and co-morbidities like chronic bronchitis and asthma. Various methods have been described for the open surgical repair of incisional hernias, for example [5,6,7,8,9,10]

1. Primary repair in one or two layers
2. Mayo-type overlap darning repair
3. Shoelace repair and
4. The use of a synthetic mesh.

Recurrence is a common complication after repair of large abdominal incisional hernias. Recurrence rates of up to 33% after first repair and 44% after second repair have been reported. [3] Hence repair of such hernias needs the use of techniques suitable and tailored to individual patients.

We operated upon 68 patients during the five-year period from January 2000 to December 2004 and the details are presented in this article.

MATERIALS AND METHODS

Sixty-eight patients were included in the study; 38 males and 30 females; of an age between 20 and 80 years. History of previous operations including that of wound infections, co-morbidities like diabetes mellitus, hypertension, bronchial asthma, chronic bronchitis and other risk factors like obesity and smoking habits were documented.

Forty-three out of 68 patients were obese with BMI >30; the remaining 25 were overweight with BMI between 25 and 30. Twenty-five male patients were smokers. Out of the total of 68 patients, 3 patients had chronic bronchitis and 5 gave history of bronchial asthma in the past but none had an acute episode during admission. Sixteen were diabetics but well controlled; so were the 10 hypertensive patients (6 of them diabetic also).

Routine investigations were completed as outpatient and patients were admitted only the day prior to surgery after ensuring fitness for surgery; prophylactic heparin therapy was given for all.

All operations were performed by open method under general anesthesia. The techniques used were

1. Primary fascial repair

2. Tension free repair with synthetic mesh prostheses
3. Shoelace repair
4. Mayo-type overlap darning repair

RESULTS

The age and sex distributions of the 68 patients are shown in table 1.

Figure 1

Table 1: Age and Sex Distribution

Age in Years	Male	Female	Total
20-30	12	6	18
31-40	6	4	10
41-50	9	11	20
51-60	8	6	14
61-70	2	1	3
71-80	1	2	3

Figure 2

Table 2: Predisposing Factors

Predisposing factors	Total Number of Patients	Percentage
Obesity	43	63%
Chest and other co-morbidities	28	41%
Wound infection	22	32%
Age >40	40	58%
Male Sex	38	55%

The types of previous operations are shown in table 3.

Figure 3

Table 3: Types of previous operations

Etiological Factors	Number of Patients
Previous cholecystectomy	4
Paraumbilical Hernia	5
Splenectomy	4
Defect in the Linea Alba	3
Appendectomy	5
Caesarean Section	16
Surgery for ectopic pregnancy	2
Epigastric Hernia	3
Laparotomy for RTA	8
Colectomy	7
Exploratory laparotomy for peritonitis	5
Others	6
Total	68

The numbers of patients treated by different open methods are given in table 4 and figure 4.

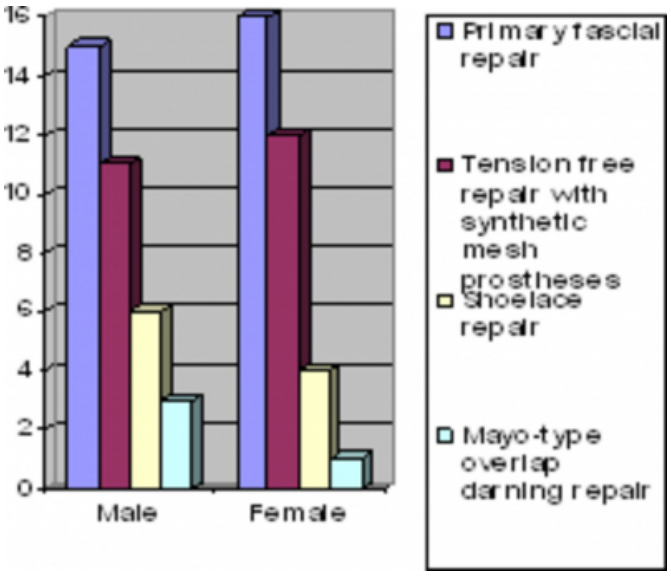
Figure 4

Table 4: Type of repair and number of patients

Type	Male	Female
Primary fascial repair	18	13
Tension-free repair with synthetic mesh prostheses	11	12
Shoelace repair	6	4
Mayo-type overlap darning repair	3	1

Figure 5

Figure 1: Numbers of patients treated by different open methods



There were no intra-operative complications but four patients with diabetes and hypertension were managed in ICU post-operatively for 48 hours.

Post-operative complications are shown in table 5. Superficial wound infection was the commonest problem and occurred in 7 patients. Seroma formation happened in 5 patients. Despite adequate heparin prophylaxis, two patients developed a deep vein thrombosis and another patient had a non-fatal pulmonary embolism. Wound hematoma developed in 2 patients. Chest infection occurred in three patients post-operatively. Post-operative in-hospital stay ranged from 2 to 17 days with a mean of 4.2 days (the patient who stayed for 17 days had deep vein thrombosis and non-fatal pulmonary embolism).

Figure 6

Table 5: Post-operative complications occurring in the 68 patients

Complications	Number of Patients
Superficial wound infection	7
Seroma formation	5
Wound hematoma	2
Chest infection	3
Urinary retention	1
Deep vein thrombosis	2
Non-fatal pulmonary embolism	1

In all patients the wound healed without problems. Of the 68 patients studied, 62 were available for follow-up. Follow-up was for 3 years. Of those treated by primary fascial repair, two patients who had wound infection and were obese and one non-obese diabetes patient who had post-operative wound infection were found to have recurrence on follow up. There were no recurrences in those treated with tension-free repair with synthetic mesh prostheses.

DISCUSSION

There are many factors resulting in the development of incisional hernias including infection, poor blood supply, tension, poor technical repair and others leading to non-healing or disruption of the fascial layers of a wound. This occurs in approximately 1% of incisions after primary closure but is more frequent in abdominal , flank and groin wounds. The incidence after an incisional SSI is approximately 10% and approaches 30% in wounds that have dehisced and have been reclosed. [4]

The use of a prosthetic mesh to repair large incisional hernias is well established and different techniques have been described. [9] It has been suggested that overlapping leads to a better repair when one considers using fascia alone or in combination with mesh. In a prospective comparison of primary closure against the use of mesh, Liakakos et al. (1994) showed that the recurrence rate was less with mesh at a mean of 7.6 years of follow-up. [10]

The complications in our patients were similar to those reported by Khaira et al. [9]

Wound infection is a potentially major complication [8] which, fortunately, is usually superficial but can be severe enough to necessitate removal of the mesh. In this series wound infection occurred in 7 patients but this was superficial and responded well to conservative treatment.

Sixty-two patients were followed up for a 3-year period. There was recurrence in three patients who underwent primary fascial repair and had wound infection. There was no recurrence in those who had tension-free synthetic mesh prostheses.

SUMMARY

Sixty-eight patients with incisional hernias treated by different open surgical repair are presented. There was recurrence in 3 patients during 3-year follow up. Obesity and wound infection were the main factors influencing the occurrence of incisional hernia in these 68 patients.

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