

Conversion of laparoscopic total extraperitoneal inguinal hernia (TEP) repair to transabdominal preperitoneal (TAPP) repair

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Objectives: To determine the frequency and reasons for conversion of TEP to TAPP.

Methodology: This cross sectional study was carried out in the Department of Surgery, Ayub Teaching Hospital, Abbottabad, Pakistan from August 7, 2013 to November 29, 2016. Data were analyzed by SPSS version 17.

Results: All 151 patients were male. Mean age was 36.24 ± 7.075 years (range 23 to 50). 91(60.3%) were from urban area, 73(48.3%) were smokers, while 49(32.4%) were hypertensive. Direct hernia was noted in 71(47.0%) and indirect hernia in 80(53.0%) patients. 21(13.90%) patients

was converted to TAPP procedure. Reasons were hemorrhage in 8(5.3%) patients, peritoneal tear in 11(7.3%), while instrumental failure in 2(1.3%) patients.

Conclusion: Main reasons for conversion to TAPP procedures were intraoperative complications i.e. hemorrhage, peritoneal tear and instrumental failure. (Rawal Med J 201;42:216-218)

Key words: Inguinal hernia, total extra peritoneal (TEP) procedure, trans abdominal pre peritoneal (TAPP).

INTRODUCTION

An inguinal hernia may be symptomless but symptoms are present in about 66% of people.¹ This may include pain or discomfort especially on straining like coughing, exercise and constipation. Inguinal hernia is the most common hernia, accounting for 90% of all spontaneous hernias.² It can be managed conservatively but pain and strangulation force surgeon to abandon conservative approach and perform surgery.³ Two important surgical procedures for repair are open tension-free by Lichtenstein repair and second being laparoscopic repair.⁴ The laparoscopic approach is thought to be particularly suited to the management of recurrent hernias as it aims to avoid scarred tissue, therefore facilitating and safer dissection for mesh placement. Among the laparoscopic techniques, total extraperitoneal (TEP) and transabdominal preperitoneal inguinal hernia repair (TAPP) are most commonly used.^{5,6} However the totally extraperitoneal technique (TEP) for hernia repair is a more solid option.⁷⁻⁹ Many surgeons hesitate to perform laparoscopic TEP repair since the pelvic anatomy is unfamiliar to them and the working space is very narrow.¹⁰

Despite advancements in surgery, TEP repair in patients with previous lower abdominal surgeries, like radical prostatectomy or cesarian section, remain a burden on the surgeons.¹¹

Most of the data published on laparoscopic hernia repair have focused on patient's cost and outcome. Although these end points are important, most of those studies have ignored conversion as an intraoperative complication, which may occur in up to 11% of cases.¹² Therefore, in our study we focused on reasons of conversion of TEP to TAPP.

METHODOLOGY

This cross sectional study was carried out in the Department of Surgery, Ayub Teaching Hospital, Abbottabad, Pakistan from August 7, 2013 to November 29, 2016. Consecutive non-probability sampling technique was used. The study was conducted after approval from hospital ethical and research committee. Patients in age group (23-50) years, only males, unilateral inguinal hernia, both direct and indirect were included in the study. Patients with weight more than 80 kg, previous lower abdominal surgery e.g. TVP and appendectomy, patients with

comorbidities or terminally ill patients and patients with known psychiatric diseases were excluded from study.

A history, examination, investigations and surgery were carried out. TEP and TAPP were performed using standard technique.¹³ Data were analyzed using SPSS version 20. Outcome variables were stratified by age. To determine significant difference with respect to outcome variable by age and type of hernia, chi-square test was used at 5% significance level.

RESULTS

The study population was 151. Mean age of the patients was 36.24±7.075 with minimum age of 23 years and maximum of 50 years. All patients were male, 91(60.3%) were from urban area while 60(39.7%) were from rural areas, 73(48.3%) were smokers while 78(51.6%) were nonsmokers, 49(32.4%) were hypertensive

Fig. 1. Conversion to open procedure.

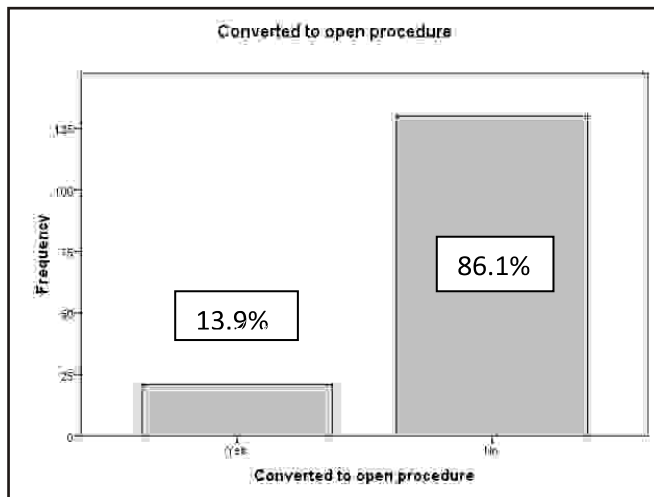


Table 1. Distribution of variables with conversion to TAPP procedure.

Variable		Converted to TAPP procedure	
		Yes	No
Age Group	23 to 30 years	6(14.63%)	36(85.37%)
	31 to 40 years	5(7.14%)	66(92.86%)
	41 to 50 years	10(25%)	30(75%)
Type of Hernia	Direct	10(14.08%)	61(85.92%)
	Indirect	11(13.75%)	69(86.25%)

Table 2. Reasons for conversion of laparoscopic to TAPP procedure.

Reason for conversion		Type of hernia	
		Direct	Indirect
Hemorrhage	Yes	4(5.6%)	4(5%)
	No	67(94.4%)	76(95%)
Peritoneal Tear	Yes	5(7%)	6(7.5%)
	No	66(93%)	74(92.5%)
Instrument failure	Yes	1(1.41%)	1(1.25%)
	No	70(98.59%)	79(98.75%)

Patients with direct hernia were 71(47.0%) and indirect hernia were 80(53.0%). There were 41(27.2%) patients from between 23 to 30 years age, 70(46.4%) from 31 to 40 years and 40(26.5%) from 41 to 50 years. Out of total, 21(13.9%) patients (p=0.013). Out of total of 151 patients, 10(14.08%) patients had direct hernia and 11(13.75%) with indirect hernia were converted to TAPP procedure (p=0.953) (Fig. 1 and Table 1). Most common reason for conversion was peritoneal tear (Table 2).

DISCUSSION

All patients in this study were male. Mean age of the patients was 36.24±7.075 ranging from 23 to 50 years. The type of hernia was direct hernia in 71(47.0%) and indirect hernia in 80(53.0%) patients. In a study by Dulucq et al indirect hernias were more common than direct hernias.¹⁴ In our study, the frequency of converted to TAPP procedure was 13.9%. Similar figures were reported in a study by Ates et al in which the frequency of conversion to open procedure was 11%.¹⁵

Major reasons for conversion to TAPP were hemorrhage (secondary to inferior epigastric vessel injury, field became obscure), peritoneal tear and Instrument failure (surgeon can't work in close narrow environment and instruments cannot properly open and close).

In reason for conversion of laparoscopic to TAPP procedure i.e. hemorrhage, 4(5.6%) patients had direct hernia and 4(5.0%) had indirect hernia (p=0.862). While in peritoneal tear, 5(7.0%) patients had direct hernia and 6(7.5%) had indirect hernia that converted to TAPP procedure (p=0.9140). Lastly, due to instrument failure,

1(1.41%) patients had direct hernia and 1(1.25%) had indirect hernia ($p=0.933$).

CONCLUSION

One seventh of patients were converted from TEP to TAPP. Main reasons for conversion were hemorrhage, peritoneal tear and instrument failure.

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