

## Euro Surgery 2020: Analysis of Prosthetic Mesh Repair in Obstructed Inguinal Hernia

Muhammad Harris Siddique

GBS Global Biopharma, Inc., Ottawa, CANADA

**A**ims and objectives: The basic aim of the study is to analyse the prosthetic mesh repair in obstructed inguinal hernia. Material and methods: This cross sectional study was performed with 70 patients who had been admitted to our hospital's emergency department between January 2019 to August 2019, to undergo surgery for a diagnosis of obstructed inguinal hernia. Patients who died in the postoperative period due to systemic complications, as well as those who were lost during the follow-up period, were excluded from the study. The patients were divided into two groups based on the applied surgical technique. Results: Mesh-based repair techniques were performed on the 35 patients comprising Group 1, while tissue repair techniques were performed on the 35 patients comprising Group 2. In this study, 81.5% of the patients were male, while 18.5% were female. Female patients had a significantly higher ratio of femoral hernia than male patients, while male patients had a significantly higher ratio of inguinal hernia than female patients. In Group 3 (table 1), 6.7% (1) of the patients had wound infections, while 6.7% hematomas, 6.7% had seromas, and none had relapses. In Group 4, 7.2% of the patients had wound infections, while 1% had hematomas, 3% had seromas, and 1% had relapses. Conclusion: It is concluded that the use of polypropylene mesh in incarcerated inguinal hernia repair has no negative effect on wound infection or complications.

**INTRODUCTION:** Inguinal hernia is a commonly encountered urgent condition in surgical clinics. An abdominal wall hernia is a protrusion of the abdominal tissues or organs through a weakness in the muscular structure of the wall of the abdomen. Inguinal and femoral hernias are usually classified together

as groin hernias [1]. It is believed that the prevalence of groin hernias in a population varies between 3% and 8%. Between 75% and 85% of all hernias are observed in men. Inguinal hernias account for 80–83% of all hernias (59% indirect inguinal hernias, 25% direct inguinal hernias, 5% femoral hernias). The most common hernias in both genders is inguinal hernia; however, femoral hernias are reported to be more common in women than in men [2]. Worldwide, more than 20 million patients undergo groin hernia repair annually. The many different approaches, treatment indications and a significant array of techniques for groin hernia repair warrant guidelines to standardize care, minimize complications, and improve results. The main goal of these guidelines is to improve patient outcomes, specifically to decrease recurrence rates and reduce chronic pain, the most frequent problems following groin hernia repair [3]. They have been endorsed by all five continental hernia societies, the International Endo Hernia Society and the European Association for Endoscopic Surgery. Inguinal hernia is a commonly encountered urgent condition in surgical clinics. Incarcerated inguinal hernia is a commonly encountered urgent surgical condition, and tension free repair is a well-established method for the treatment of non-complicated cases [4]. However, due to the risk of prosthetic material-related infections, the use of mesh in the repair of strangled or incarcerated hernia has often been the subject of debate. Recent studies have demonstrated that biomaterials represent suitable materials for performing urgent hernia repair [5]. Certain studies recommend mesh repair only for cases where no bowel resection is required; other studies, however, recommend mesh repair for patients requiring bow-

el resection as well [6]. Aims and objectives The basic aim of the study is to analyse the prosthetic mesh repair in obstructed inguinal hernia. MATERIAL AND METHODS: This cross sectional study was performed with 70 patients who had been admitted to our hospital's emergency department between January 2019 to August 2019, to undergo surgery for a diagnosis of obstructed inguinal hernia. Patients who died in the postoperative period due to systemic complications, as well as those who were lost during the follow-up period, were excluded from the study. The patients were divided into two groups based on the applied surgical technique. Group 1 consisted of 35 patients treated with mesh-based repair techniques, while Group 2 consisted of 35 patients treated with tissue repair techniques. The surgical technique to be applied was selected by the surgeons. The Lichtenstein procedure was used for obstructed inguinal hernia patients where mesh-based repair was preferred, while the Bassini procedure was used for obstructed inguinal hernia patients where the tissue repair technique was preferred. Patients in Group 1 were further divided into two sub-groups: one consisting of patients undergoing bowel resection (Group 3), and the other consisting of patients not undergoing bowel resection (Group 4). Thus, Group 3 anti-biotherapy included patients who underwent mesh repair in addition to bowel resection, while Group 4 consisted of patients not assigned for bowel resection who underwent mesh repair. Statistical analysis The Statistical Package for the Social Sciences (SPSS version 20.0) for Windows software package was used in data collection and statistical analysis. RESULTS: Mesh-based repair techniques were performed on the 35 patients comprising Group 1, while tissue repair techniques were performed on the 35 patients comprising Group 2. In this study, 81.5% of the patients were male, while 18.5% were female. Female patients had a significantly higher ratio of femoral hernia than male patients, while male patients had a significantly higher ratio of inguinal hernia than fe-

male patients. In Group 3 (table 1), 6.7% (1) of the patients had wound infections, while 6.7% hematomas, 6.7% had seromas, and none had relapses. In Group 4, 7.2% of the patients had wound infections, while 1% had hematomas, 3% had seromas, and 1% had relapses.

DISCUSSION: Incarcerated inguinal hernia is one of the most common urgent surgical conditions. Ten percent of patients with inguinal hernia present with incarceration, and require urgent surgical procedures. For inguinal hernias, the risk of strangulation varies between 0.29% and 2.9%. The most commonly used prosthetic materials in tension-free mesh repair are polymers, polypropylene, and polyester [7]. Polypropylene is the most preferred of these, since it provides the best prosthesis leading to fibroblast activation. The pore size of the mesh is also important. With pore sizes larger than 75  $\mu\text{m}$ , it is easier for macrophages to penetrate the tissue, which helps to minimize the risk of infection [8]. Papaziogas et al. conducted a study of 75 patients with incarcerated hernia who underwent surgery in their study, where 33 patients were assigned to the tension-free mesh repair group (Group A), while 42 patients underwent hernioplasty with the Bassini procedure (Group B); the outcomes in both group were then compared [9]. Two patients in Group A and four patients in Group B had wound infections; however, no statistically significant difference was identified between the groups. In Group B, hospitalization time was significantly longer. The mean follow-up period was nine years. One patient in Group A and two patients in Group B experienced relapse. This study reported that the use of polypropylene mesh in strangulated hernias can be considered safe [10]. Wysocki et al. previously performed a study of 77 patients who underwent the Lichtenstein procedure. In this study, two of the patients had seromas, while two patients had limited wound infections. The study reported that the use of monofilament polypropylene mesh implantation in strangulated hernias is safe, with a low risk of local

infection risk [11].

**CONCLUSION:** It is concluded that the use of polypropylene mesh in incarcerated inguinal hernia repair has no negative effect on wound infection or complications. Considering the fact that traditional tissue repair techniques can increase the risk of relapse, the current study results revealed that polypropylene mesh can be used safely in urgent groin

hernia repair, even in cases where bowel resection is required.

**REFERENCES:** 1. Velitchkov NG, Losanoff JE, Kiossev KT, Grigorov GI, Kirov GK, Losanoff CE. The Lichtenstein open tension-free inguinal hernia repair using a new prosthetic mesh-Bulgarian irresorbableampoxen. Int Surg. 1996;81:205–9