Recurrence, foreign body feeling and chronic groin pain in Lichtenstein inguinal hernia repair: The use of titanized versus polypropylene meshes in a comparative, retrospective study.

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Introduction

Inguinal hernia repair is one of the operations performed frequently in general surgery, post-operation recurrence, chronic pain and foreign object feeling have become most important problems required to be solved for surgeons [1,2]. Titanium meshes have low weight and wide pore space, recently they started to be used in inguinal hernia surgery [3]. The study aims to provide affect of titanium and polypropylene mesh use in Lichtenstein repair on recurrence during post-operative period, foreign object feeling and chronic pain, as accompanied by literature.

Surgical Technique

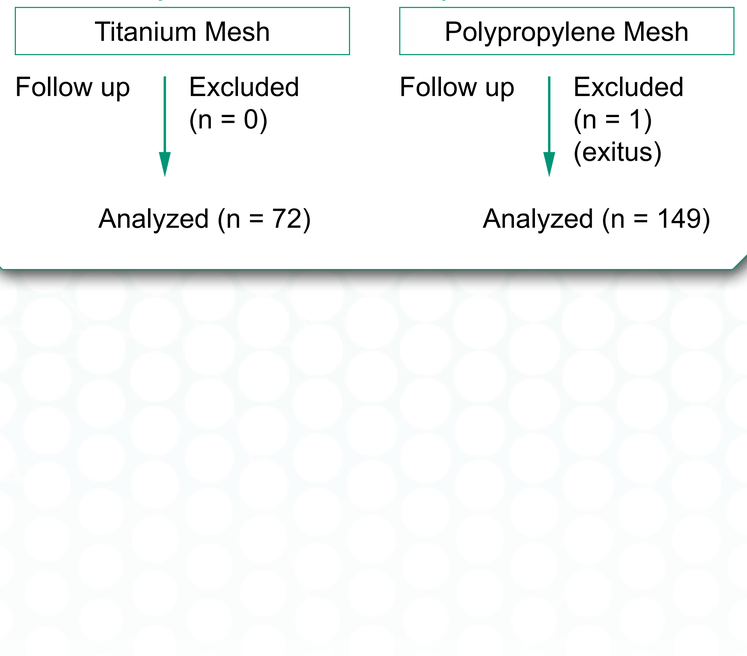
The incision is placed about 1 cm above and parallel to the inguinal ligament, beginning from the pubic tubercule and extending 5-6 cm laterally up to the mid-inguinal point. Skin, subcutaneous fat tissue, camper and scarpa tissues were passed with incision. External oblique aponeurosis and external inguinal ring were visualized. The external oblique aponeurosis was incised about 4 cm throughout the incision. Spermatic cord and elements are put aside. The hernia sac was detected and isolated by dissections (direct, indirect and combined hernia). The hernia sac was duly repaired. The mesh was fixed starting from the pubic tubercule by passing 2/0 polypropylene suture through the inferomedial of the mesh. The mesh was fixed with continuous sutures until the end of the inguinal ligament. The mesh was fixed around the internal ring with primary sutures made from the 2 cm inferior of the canal without narrowing the inguinal canal elements. In addition, 1 primary suture was placed on the top corners of the mesh. In both groups, utmost attention was paid to nerve exploration and not to damage to the nerves. Subcutaneous tissue were confronted with 3/0 vicrly suture (polyglactin 910, Ethicon, Holland) and skin were sutured with 3/0 polypropylene suture (Prolene, Ethicon, Holland) subcutaneously.

Methods

Between 1 May 2014-1 January 2018, at Ordu University Training Hospital patients on which Lichtenstein repair was carried out with the diagnosis of inguinal hernia were assessed retrospectively. Age, gender, body mass index (BMI), hernia side, hernia type, ASA (American Society of Anesthesiologists) score, operation duration, hospitalisation duration, recurrence, chronic pain and foreign object feeling of patients were reviewed retrospectively. Surgeries were performed under elective conditions and by same surgeon. Written consent was obtained from patients before operations. Patient information was analyzed by scanning the archived files of patients or calling the patients by phone.

Patients were divided into two groups; study and control groups. Study group consisted of patients on whom titanium mesh (TiO2, Biocer, Bayreuth, Germany) were used; control group consisted of patients on whom polypropylene mesh (Prolene, Ethicon, Amersfoort, the Netherlands) was used. Titanium mesh is manufactured by coating polypropylene monofilaments with titanium dioxide, it has low weight (47 gram (gr)/metre (m)2) and wide pore space (2,8 milimetre (mm)). Polypropylene meshes have monofilament structure, they have high weight (80 g/m2) and narrow pore space (0.8-1.2 mm). Patients were operated with tension-free method described by Lichtenstein [4]. Size of both meshes is 15x10 centimeter, they were fixed with 2/0 suture (Prolene, Ethicon, Amersfoort, the Netherlands).

With respect to recurrence, patients were asked whether swelling and/or pain existed at surgery site, if any of these were present, they were called to hospital. Re-emergence of inguinal hernia was discovered with recurrence, physical examination and ultrasound. The patients were asked “do you feel any foreign object at operation site?” for foreign object feeling. Answers of patients were recorded as “yes” or “no”. Patients were asked “do you feel pain while resting, coughing, climbing stairs and during physical activity at your surgery site?” with respect to pain. Pain status of patients were ranked according to visual analog scale (VAS) between 0 (painless) to 10 (the worst pain one can imagine) [4]. Chronic pain is considered as pain continuing after month 6 at operation site.



Results

The study consisted of 221 patients in total where titanium mesh was used on 72 (%32.6) and polypropylene mesh was used on 149 (%67.4) people. 17 of patients (%7.7) were female while 204 (%92.3) were male. Age average and gender distribution of groups were similar, significant difference was not determined between groups with respect to age and gender ($p>0.05$). Significant difference was not determined between groups with respect to BMI, hernia side, hernia type, ASA score, operation duration, anesthesia type, hospitalisation duration and follow-up duration ($p>0.05$).

While significant difference was not determined between the groups with respect to recurrence ($p=0.61$), foreign object feeling and chronic pain were determined significantly less at titanium group ($p=0.044$, $p=0.046$, respectively). Recurrence, foreign object feeling, and chronic pain information of patients is shown at Table 1.

Recurrens, foreign body feeling and chronic pain information

Variables	Titanium mesh (n=72)	Polypropylene mesh (n=149)	*P value*
Recurrens	1	3	*0.61**
Foreign body feeling	11	41	*0.044**
Chronic pain	3	19	*0.046**

*: The Mann-Whitney U test applied, and p values of less than 0.05 were regarded as statistically significant.

Conclusions

While in Lichtenstein repair, titanium meshes cause less foreign object feeling and chronic pain in comparison to polypropylene meshes, there is no difference between the two batch groups with respect to recurrence. We are of the opinion that prospective studies with wide population to be carried out can illuminate this subject matter.

References

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