

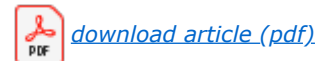
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THE BENEFITS OF USING POLYESTER MESH IMPLANT DURING ANTERIOR INGUINAL HERNIA REPAIR. CASE REPORT

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ABSTRACT

Aims: To find the results of using polyester mesh implant as an optimal alternative to polypropylene for open anterior inguinal hernia repair by Lichtenstein.

Case Description: We present a 53-year-old-male patient with uncomplicated right-sided oblique inguinal hernia. Reinforcement of the posterior wall of the inguinal canal was done using polyester mesh implant fixed by dacron sutures. Successful repair was achieved with reduced operative-time and smooth recovery free from complications during post-operative and short-term follow-up intervals.

Conclusions: Polyester mesh implant could be considered an optimal alternative to polypropylene for open anterior inguinal hernia repair.

Keywords: Inguinal hernia, Polyester mesh implant, Lichtenstein.

INTRODUCTION

Inguinal hernia repair operations account for about 10-15% of all annual global surgical interventions [1]. Lichtenstein technique represents the golden standard among more than 300 available methods of repair [2].

The physical characteristics of mesh implants are determined according to its pore size, fiber diameter, scaffold thickness, area density [3], Suture retention strength, Tear resistance, ball burst uniaxial tensile and lap shear testing [4]. According to the Deeken & Lake mesh classifications system [5], polyester is ranked as the first category of mesh implants, and is characterized by being multifilamentous, polar, hydrophilic, and coated by collagen preventing adhesions, so it could be used intraperitoneally 'inlay' [6].

Polyester mesh implants could be considered as a safe and effective alternative to polypropylene for open inguinal hernia repair [7], as using polyester had been associated with less early and late postoperative pain and shorter hospital stays [8]. In addition to reduced additional analgesic requirements in comparison to polypropylenes, polyester initiates an early intense inflammatory reaction which stimulates more tissue ingrowth and integration with higher connective tissue formation in comparison to polypropylenes. This leads to less mesh contraction, less fibrosis and stiffness around the mesh, less stretching in the sensory nerves surrounding the mesh, thus resulting in less postoperative pain [9]. However, the incidence of seroma formation, wound infection and recurrences showed no significant differences between both scaffolds [10].

CASE DESCRIPTION

On 26 January 2021, a 53-year-old male patient was admitted to Department of Operative Surgery and Clinical Anatomy of the Hospital No.85, Moscow, Russia. He complained that the hernial protrusion in his right groin area was gradually increasing in size, being completely reducible without any infringements for few months.

Upon examination: Satisfactory general status, clear consciousness with normosthenic musculoskeletal system. Vital signs; Temperature: 36.6C, respiratory rate 16C/minute, Pulse: 70b/min., regular, normal rhythm with soft flexible arterial wall. Blood pressure: 120/80 mmHg. Skin status; moist without abnormal pigmentations, pallor or cyanosis. No lymphadenopathy or lymph node enlargement. Normal breathing without wheezes, no abnormalities upon chest percussion or auscultation. Cardiac examination was quite norm with regular rhythm without any murmurs. Abdominal examination; No scars, no palpable organs. Urination: free.

Status localis: Hernial protrusion up to 8*5 cm in the right inguinal region, with impulse on cough, completely reducible into the abdominal cavity without pain, the external inguinal ring is up to 2.5 cm with normal skin covering. Upon obstructing the external inguinal ring with the tip of the little finger and asking the patient to cough while standing; the hernia descends downwards, forwards and medially hitting the finger's tip: Uncomplicated Right-sided oblique inguinal hernia.

The patient's biochemical profile was quite normal. Furthermore, Antibodies to the HIV, Syphilis, HBS-antigen, HCV-antibodies- negative. Abdominal sonar; No organomegaly or ascites, size of hernial sac up to 8x3x4 cm, hernial content; single small intestinal loop "ileum". Duplex ultrasonography of the lower extremities; Varicose veins; 1st degree, without any complications: no signs of thrombosis of subcutaneous and deep veins of at the time of the study.

Treatment plan: Reinforcement of the posterior wall of the inguinal canal with polyester mesh implant by Liechtenstein repair.

On 27 January 2021 the surgery was performed.

Patient position: Supine.

Type of anesthesia: Spinal.

Step 1: Surgical field treatment: The surgical field was treated in one direction with two separate sterile swabs, abundantly moistened with antiseptic solution. Exposure time at the end of processing for 2 minutes.

Step 2: Incision. A 6-cm inguinal incision corresponding to Langer's line was done above and parallel to the right inguinal fold. The skin, subcutaneous fat and aponeurosis were dissected. The spermatic cord was isolated taken on a holder.

Step 3: Herniotomy: A hernial sac of 8*3*4 cm was isolated, opened, isolated to the neck, stitched, bandaged, cut off after reduction of the hernial contents back into the abdominal cavity.

Step 4: Hernioplasty of the right inguinal hernia by Lichtenstein on-lay: the posterior wall of the inguinal canal was reinforced with a Polyester mesh implant 15*9 cm. The mesh was secured to the inguinal ligament starting from the pubic tubercle reaching up to the level of the deep inguinal ring with dacron sutures. The integrity of the spermatic cord was restored. The external oblique aponeurosis was reapproximated above the spermatic cord using absorbable sutures. Hemostasis was achieved.

Step 5: Wound closure. The wound was closed layer by layer.

Operative-time; 35 min.

During the post-operative stay; the patient status was quite satisfactory. The post-operative pain was responding to NSAIDs without any complications. The patient was discharged by post-operative day six.

The patient was recommended to limit physical activity for 6 months and to wear compressive elastic bandages on the lower extremities.

During follow-up for 6 months, the patient had no complications. No recurrence.

CONCLUSIONS

Using polyester mesh implant was followed by effective, uncomplicated repair of inguinal hernia without recurrence.

CONFLICTS OF INTEREST

Authors have no conflict of interest to declare.

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AUTHOR CONTRIBUTIONS

Mekhaeel Mekhaeel, Protasov Andrey - conceptualization, writing original draft, review and editing, project administration; Mekhaeel Mekhaeel, Salem Sameh – visualization, Protasov Andrey – supervision.

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