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Abstract Title: USE OF TOTALLY ABSORBABLE BIOSYNTHETIC MESH IN INGUINAL HERNIA REPAIR: A SINGLE CASE EXPERIENCE
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Background

Totally absorbable biosynthetic meshes are used to repair abdominal wall defects. A study conducted on animal models measured a mean mechanical resistance to centrifugal breakthrough in swine abdominal wall and inguinal canal of about 50 N. Collagen apposition and remodelling, induced by prosthesis made of a poly-4-hydroxybutyrate (P4HB) monofilament scaffold totally resorbable (through hydrolysis), demonstrated in preclinical tests the creation, over a period of 12-18 months, of a tissue with a mean resistance to breakthrough above 200 N. P4HB is a biomaterial studied for its application also in cardiac surgery and orthopedics, drug delivery and tissue engineering. The aim of our study is to evaluate, for the first time on humans, the feasibility, effectiveness and possible complications connected to this type of prosthesis for the treatment of inguinal hernias.

Materials and Methods

The patient in our study was a 69-year-old man, normal-weight, suffering from reducible indirect inguinal hernia, PL2 according to European Hernia Society (EHS), since 2016. His comorbidities were arterial hypertension (good pharmacological control) and benign prostatic hyperplasia. Surgery was conducted in local anaesthesia with suture-less/tension- free technique, performing the reduction of the hernia sac in the abdomen, plastic of deep inguinal ring and plication of transversalis fascia with a resorbable thread. Then a totally resorbable mesh, consisting of a poly-4-hydroxybutyrate monofilament scaffold, was positioned and fixed on pubic tubercle with only one absorbable thread; tails were sutured each others with the same thread.

Results

Patient's follow up consisted of clinical examination after 1 week and after 1-3-6-9 months from surgery. Post-operative course was always regula, at the third month the patient only reported modest occasional discomfort during bust flexion/extension movements. Ultrasound (US) performed after 6 months demonstrated absence of recurrence and correct mesh localization. After 9 months our patient was totally asymptomatic.

Conclusions

The study is not yet completed because the patient has not yet reached the 12-18 follow up months, within which the mesh should be completely reabsorbed. Preliminary data demonstrated the effectiveness of repair using this type of mesh, the absence of complications and relevant symptoms. However, prospective controlled studies are necessary to evaluate the effectiveness of tissue regenerative surgery when compared with usual reparative techniques.