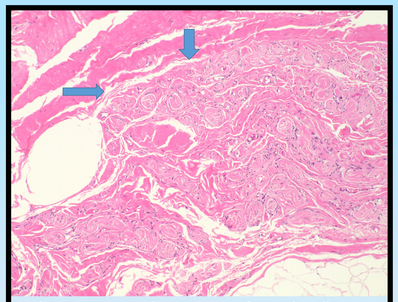
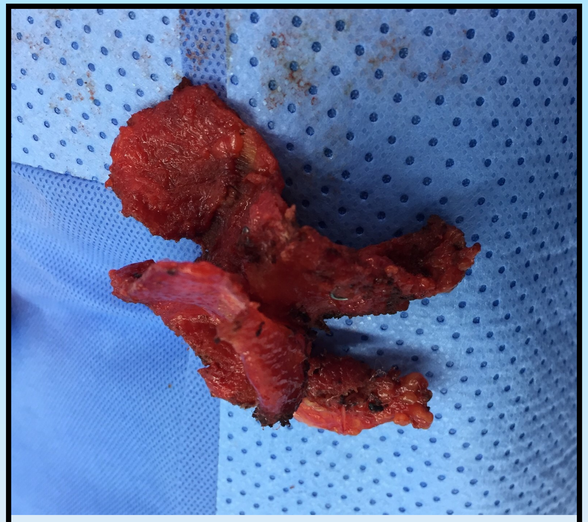
Hernia Mesh Explantation for Mesh Inguinodynia and Allodynia

INTRODUCTION:
Chronic pain after mesh implantation for abdominal wall and inguinal hernia repair is an indication for the removal of mesh and reconstruction by a non-mesh technique. A cluster of patients who have developed positive serology for autoimmune conditions after mesh hernioplasty have also required mesh explantation.

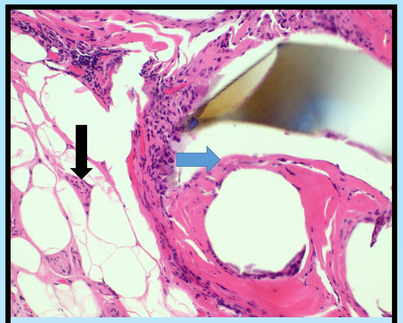


Medium power (x100 magnification) illustrating fibroadipose tissue containing a traumatic neuroma-like proliferation of nerve bundles of varying size (light pink rounded fascicles)

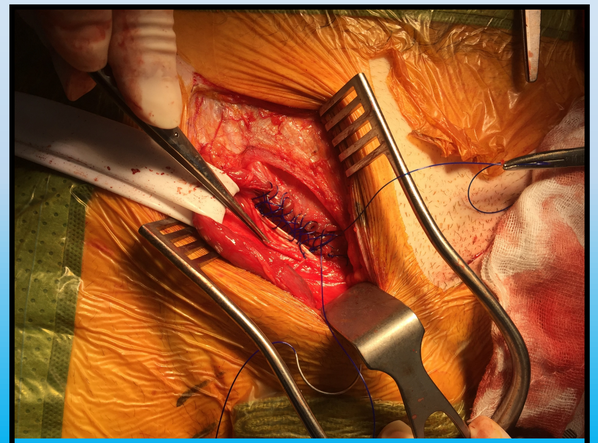
MATERIALS AND METHODS:
In a consecutive series over 12 years, 105 patients had mesh removed to relieve chronic groin pain and/or autoimmune symptoms. The technique of mesh removal by the open method relies on confirming normal anatomical landmarks, in particular the inferolateral border of the External oblique aponeurosis, then incising the aponeurosis from lateral to medial as far as the superficial inguinal ring. Mesh is usually encountered deep to the External oblique aponeurosis. The superior and inferior leaf of the External oblique aponeurosis are raised and the spermatic cord/round ligament is identified and retracted with a Penrose drain. The mesh is gently dissected off the Internal oblique from lateral to medial taking care in preserving the vas deferens, and gonadal vessels. Adherent ilio-inguinal, iliohypogastric or genitofemoral nerves are removed with the mesh. The series also included a number of patients who had laparoscopic-placed mesh removed endoscopically. The resultant recurrent hernia is repaired by Moloney's darn, a tension-free tissue repair.



Explanted bi-layer mesh



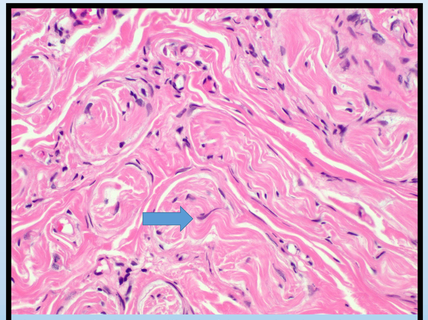
High power (x200 magnification), using partially polarised light, to illustrate a polarisable mesh fragment surrounded by a ring of multinucleated foreign body-type giant cells, with some light pink rounded fascicles of nerve fibres present in the adipose tissue to the lower left.



Mesh-free darn reconstruction

RESULTS:
105 consecutive referred patients have been treated by mesh explantation and immediate and delayed reconstruction an estimated average 6 years after implantation. 4 patients had bilateral mesh removed at the same operation and 1 patient had contralateral mesh removed 6 months later. One patient had anterior mesh explanted then a 2nd preperitoneal mesh removed subsequently Resolution of symptoms was usually experienced shortly after the mesh was removed. No particular mesh was implicated as a pain generator. Preperitoneal mesh particularly Kugel patch has been the most difficult to remove. The spectrum of positive autoimmune serology markers ranged from scleroderma, Sjogren's syndrome, SLE, rheumatoid arthritis, sarcoidosis etc. The majority of meshes have been submitted for histological examination and the findings were usually chronic granulomatous foreign body giant cell reaction, histiocytic chronic inflammatory reaction and/or fibrosis. Occasionally, traumatic neuroma-like nerve bundles of variable size were encountered. 2 meshes elicited no histological inflammatory reaction. No infected meshes were encountered. Few complications have been encountered with a minimum follow-up period of 12 months, the most common being the failure of explantation to completely alleviate groin pain in the long term. 2 patients underwent orchidectomy as a complication of mesh explantation and fibrosis of the spermatic cord.

CONCLUSION:
The human body exhibits non-specific inflammatory responses in an attempt to engulf and destroy foreign material and draws in surrounding tissue including peripheral nerves in a fibroblastic response. Relief of symptoms in the 1st post-operative week was a harbinger of a successful outcome and good long-term prognosis. All hernia patients should be given the option of a non-mesh hernia repair but if mesh repair is chosen, should be afforded fully informed consent including discussing the potential long-term consequences of chronic groin pain.



High power (x400 magnification) illustrating light pink rounded fascicles of the nerve fibres - with their characteristic 'swan-neck' spindled nuclei

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