RESEARCH ARTICLE

REMOVAL OF INFECTED RESIDUAL MESH IN A RECTOPEXY PATIENT THROUGH ENDO-ANAL PULL THROUGH - AN INNOVATIVE APPROACH.

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Abstract:
Objective: The aim of this study is to reproduce successfully the principle of a pediatric surgical operation in a complicated adult patient.

Summary Background Data: Mesh rectopexy is a known operation, infection in mesh is an unknown complication but it happens. Several techniques had been reported in journals. Our challenging case where the residual mesh migrated down and the patient was treated with total proctectomy and endo-anal pull-through procedure. So far literature review suggests this is the first case of this kind.

Methods: This patient was operated after reviewing the situation and following the pediatric surgical principle.

Results: We have operated the patient successfully and patient has recovered well.

Conclusions: Our patient was a unique complicated patient and we had applied pediatric surgical principle successfully.

Introduction:-
Mesh rectopexy is a standard recommended operation for rectal prolapse and complication like mesh erosion into the rectum is rare but a known complication [1]. Removal of the mesh is a standard treatment in such a scenario. Various methods of mesh removal in this condition had been reported in the literature [2]. Laparoscopic removal or open procedure like colostomy [3] and mesh removal and anterior resection [4] has been reported by various authors. Endo anal pull through was describe by soave for Hirschprung Disease (HD), which is essentially a disease of the lower rectum where innervation is absent [5]. The Principle of the procedure was later used in low rectal cancer successfully [6]. We understood after reviewing the pathology that the mesh is intimately adherent to the rectal wall and is incorporated into the rectal wall. Removal of the mesh would cause injury to the rectal wall and subsequent rectal stricture or fistula formation. As we all know the connective tissue and the inflammatory infiltrate develops around the mesh and tissue is integrated and consolidated [7]. We adapted an innovative way to solve the residual mesh erosion through Soave technique by doing distal proctectomy and established the continuity through endo-anal pull through.

Case report:-
In May 2015, a 50-year-old man presented with features of complete rectal prolapse and was treated with open posterior mesh rectopexy in a teaching hospital in August 2015. Immediate post-operative period was uneventful. Few weeks later in November 2015, he came back to outpatient department with heaviness of the rectum, severe pain during defecation and repeated passage of stool. Review of the operation note shows he underwent open posterior mesh rectopexy with 15cm X 10 cm mesh. Per rectal examination showed mesh and silk thread in the lower part of the rectum and it was very painful. Colonoscopy was done and the mesh and suture material was seen in the rectum. In January 2016, the mesh was removed by the open laparotomy technique.

Five months later the patient came back again with the similar symptoms of infected residual mesh. On clinical examination mesh is palpable with stitches and stapler and abating on the pelvic floor. Colonoscopy was
performed and the finding was confirmed. Contrast enhanced CT scan was done to evaluate the extent of the mesh remnant and the surrounding pathological changes.

It was found that the mesh was impregnated to the posterior rectal wall and probably inseparable as the linear hyper densities seen attached to the rectal wall no evidence of intestinal obstruction, no significant surrounding fat stranding / collection noted. Colonoscopy report reveals that visible mesh in the mucosa with suture material and granulation tissue. The patient’s history, CT scan, Colonoscopy report and previous operative note were reviewed. Considering the condition and previous operation a distal proctectomy and one-stage trans-anal pull through to maintain the continuity and a covering colostomy were planned. This One-Stage procedure is a very successful technique (Figure2) for Hirschsprung Disease and Pediatric surgeons are practicing [5]. This pull through operation technique was successfully used in lower third of rectal carcinoma to maintain the continuity and sphincter conservation [8].

In this procedure we explore the abdomen with spinal anesthesia and opened the abdomen through previous incision. After dissecting the intestinal adhesions we mobilized the rectum through a U shaped incision on the peritoneum. Whole of the rectum is mobilized and adhesions and stitches were removed. The mesh-bearing portion of the rectum was excised. The mucosectomy was performed through the endo-anal route by raising the layer with Xylocaine (2%) and Adeline injection. The rectum was divided at the recto sigmoid junction. The proximal portion was negotiated through the anal canal and stitched at the muco-cutaneous junction. An ileostomy was made to divert the stool and homeostasis checked. We closed the abdomen in layers and putting a drain in the pelvis. After two months we checked the area with colonoscopy and barium enema and closed the colostomy. Recovery was fine and patient was discharged on the 10th post-operative day. At six months follow up the patient was doing well and without any incontinence rectal prolapse and tenesmus.

Discussion:-

Posterior Mesh rectopexy is a standard and recommended treatment for complete rectal prolapse along with other procedure [9]. Other than recurrence of prolapse there are many mesh related complication like erosion, displacement, fistula and infection. After rectopexy mesh related complication increases history of radiation, diabetes and poor surgical technique [10]. Mesh removal is the cornerstone of treatment in most of these complications. Various procedures have been reported in the literature regarding removal of the infected mesh [3]. These include open or laparoscopic removal or per-rectal removal of the mesh. In this present case the patient presented late after a long time and mesh was incorporated in the rectal wall and was inseparably adherent to the rectal wall. Patient also had an unsuccessful attempt of mesh removal by open surgery. In the CECT the condition of the involved rectal wall was unhealthy and mesh was intimately incorporated to the rectal wall. There was a high chance of rectal injury and subsequent rectal stricture for attempted removal of mesh only. Excision of the involved lower rectum along with the mesh was considered to be the more logical and appropriate for this patient. Furthermore, after two surgeries access to the area was difficult. Considering the above history we consider an innovative approach by coping one stage trans anal soave pull through procedure.

Soave procedure basically a surgical therapy for Hirschprung disease where a ganglionic part of the lower colon and rectum is excised fully followed by pull through procedure. The healthy colon then passed through the anal canal opening to reconstruct the new continent anus. Recently, in low rectal carcinoma surgeons had done this operation successfully [6]. In their experience this operation had better long-term functional outcome with less complications like fistula, pelvic abscess and incontinence. Jacob C. Langer et al (2000) found that Soave pull through was significantly associated with shorter duration of hospital stay and lower economic cost and without an increased risk of complications [5].

In the present case, the patient had a mesh rectopexy and the mesh was infected and migrated. However, failed attempted of mesh removal further complicated the local condition of the rectal tissue. Any redo-procedure for sole mesh removal could have lead to rectal stricture or fistula or pelvic abscess requiring further surgical intervention.

Removal of the whole of the rectum with the mesh was the most appropriate to prevent further complication for this patient. Otherwise the fibers of the mesh remain of the rectal wall and the ongoing inflammation and foreign body proctitis will continue. In this challenging situation we plan to follow the soave procedure after removing the rectum. Patient was operated successfully and a good follow-up.
**Figure 1:** CT scan of the pelvis showing the mesh attached to the rectal wall with white streaks.

**Figure 2:** Sigmoidoscopy reveals the mesh in the submucose, staples, and thread hanging in the rectum with granulation tissue.

**Conclusion:**

So far there is no report in the literature regarding use of soave procedure for removal of infected residual mesh that has migrated following mesh rectopexy operation. Soave procedure is a time tested operation in pediatrics age group; this operation can be successfully reproduced in the adult lower rectal conditions.
Reference: