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INCISIONAL HERNIA COMPLICATIONS AFTER USING POLIPROPILEN MESH – CASE REPORT

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ABSTRACT:
INCISONAL HERNIA APPEARS AS A RUPTURE OR A DEFICIENT OF INTERFASCIAL FIBROSIS WITCH HAS A RATE OF 11-23% AFTER A LAPAROTOMY. FOR REDUCING THE RATE OF INCISIONAL HERNIAS PROSTHETIC MESH WERE USED, IN SPECIAL POLIPROPILEN. COMPLICATIONS LIKE SEROMA, FISTULA, BOWEL OBSTRUCTION, CHRONIC PAIN MUST BE CONSIDERED AND AVOIDED. IN CASES OF COMPLICATED INCISIONAL HERNIA WITH LIFE –THREATENING SITUATIONS THE EMERGENCY TREATMENT MUST BE TAKEN. IF THE CORRECT MESH IS NOT USED FOR THE COVER OF AN MINIMAL 5 CM OVERLAP THE POSTOPERATIVE COMPLICATIONS INCREASE DRAMATICALLY. FIBROBLASTS, FOREIGN BODY GIANT CELLS, CAPILLARIES AND MACROPHAGES HAVE DIFFERENT ACTIONS DEPENDING ON THE TOPOGRAPHY AND THE STRUCTURE OF THE MATERIAL USE. MESHES WITH PORE >1000 µM ASSURE A BETTER PROTECTION FROM COLONIZATION OF BACTERIAL DUE LARGE FILAMENTS THAT FACILITATE THE INFILTRATION OF MACROPHAGES. THE SOLUTIONS FOR MESH INFECTION IS THE COMPLETE REMOVAL OF THE PROSTHETIC MATERIAL, A COMPLETE DEBRIDEMENT OF THE REGION AND A CORRECT ADMINISTRATION OF SYSTEMIC ANTIBIOTICS.

KEY WORDS: INCISONAL HERNIA, COMPLICATIONS, POLIPROPILEN MESH

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INTRODUCTON:

Incisional hernia appears as a rupture or a deficient of interfascial fibrosis.(1) The rate of incisional hernia is situated between 11-23% of laparotomies.(2) Many procedures were describe from beginning, starting with using the nearby structure to different forms of alloplastic meshes. Before the laparoscopy, in which incison length was minimized, all procedures were done throught large incisions.(3) Incisonal hernia repair is considered a routine surgery procedure. For reducing the hernia recurrence prosthetic meshes are used in almost half operation performed. (4) Because the prostetin mesh is a foreign material for human tissues, it is also considered the cause of complications like skin infection, fibrosis, seroma, mesh rejection, chronic pain, fistula, bowel obstruction, hernia recurrence.(5). Studies on long-term follow-up complication are limited and only for small groups.(6) When the incisonal hernia get complicated, incarcerated or strangulated, site infections can appear and also life-threatening situations.

CASE REPORTS
CASE I

Figure 1. Preoperator view

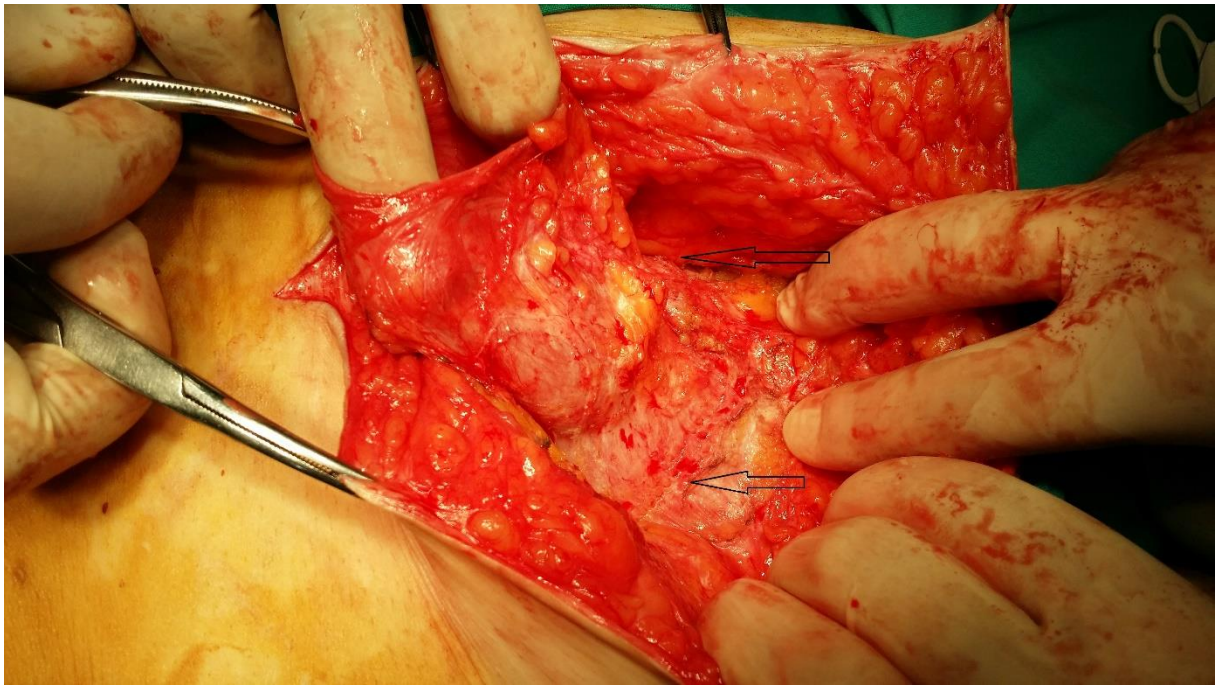

Figure 2. Intraoperator view – upper side of the mesh breach

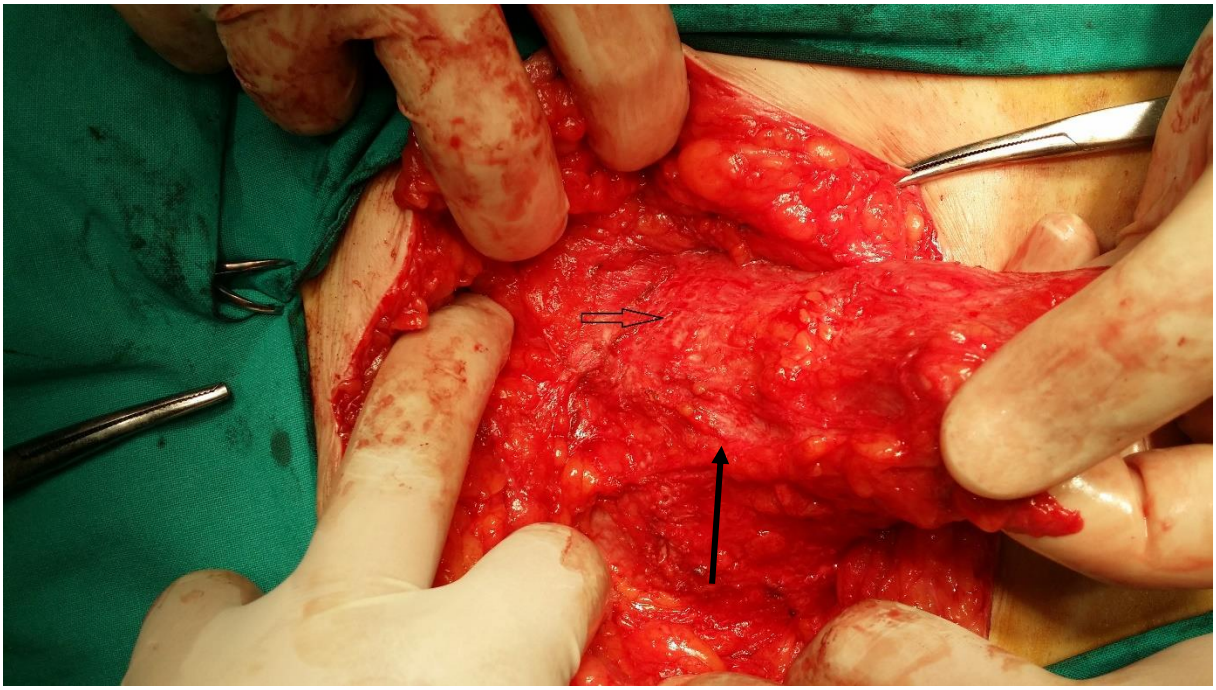

Figure 3. Intraoperator view – image below the mesh breach

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A 57 year old woman presented in the Emergency Department with fever, palpable hypogastric mass, intense abdominal pain at the inferior pole of the postoperative scar with a creamy white pus at this level. She observed a bulge at the inferior pole of incision in the last 6 months with progressive grow in the last 3 weeks. Leukocytosis level was 20.000 WBC/mm^3 and neutrophilic response, without other abnormality laboratory tests. Abdominal radiography didn't reveal signs of obstruction.

She was first operated 14 years ago when was performed classic cholecystectomy for acute gangrenous cholecistitis.

Two years ago she had 34.5 IMC, chronic obstructive pulmonary disease and a incisonal hernia with a length of 10 cm for witch the surgeon used a 20/10 cm polipropilen lightweight mesh – onlay technique without any postoprattive complication. She was hospitalized for 7 days.

She was prepare for emergency surgery. Have been taken samples for bacteriological exam from the local fistula. After the dissection of the subcutaneous tissue we found a hole in the middle of the polipropilen mesh with a 5 cm diameter from which a hernia sac prolab. Great omentun and small bowel witout any ischemic or fistulous lesions were reduced in the peritoneal cavity. Parietal defect was closed with PGA No 2 continuous suture. The polipropilene mesh was completely extracted. Two suction drains were positioned in the subcutaneous tissue. There were 7 days of recovery and discharged in good condition.

The antibiotherapy used was Piperacillin-Tazobactam: loading dose of 4.5g in 30 min then 4.5g x 3 per day in 4h infusion. Prolonged injection has been administrated because ensure a superior protection than intermittent injection.

Bacteriological exam reveal that Staphylococcus aureus, Staphylococcus spp. and Streptococcus spp were responsible for local infection.

CASE II

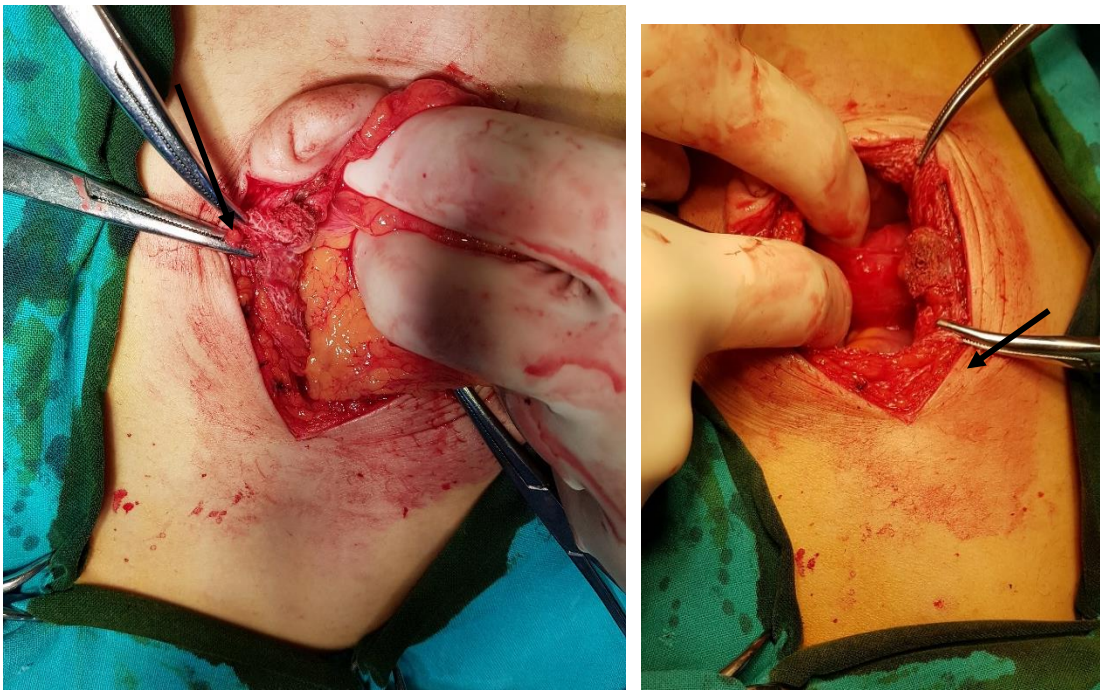

Figure 4 , 5 : Polipropilene mesh agglutinated over the aponeurosis of rectus abdominis

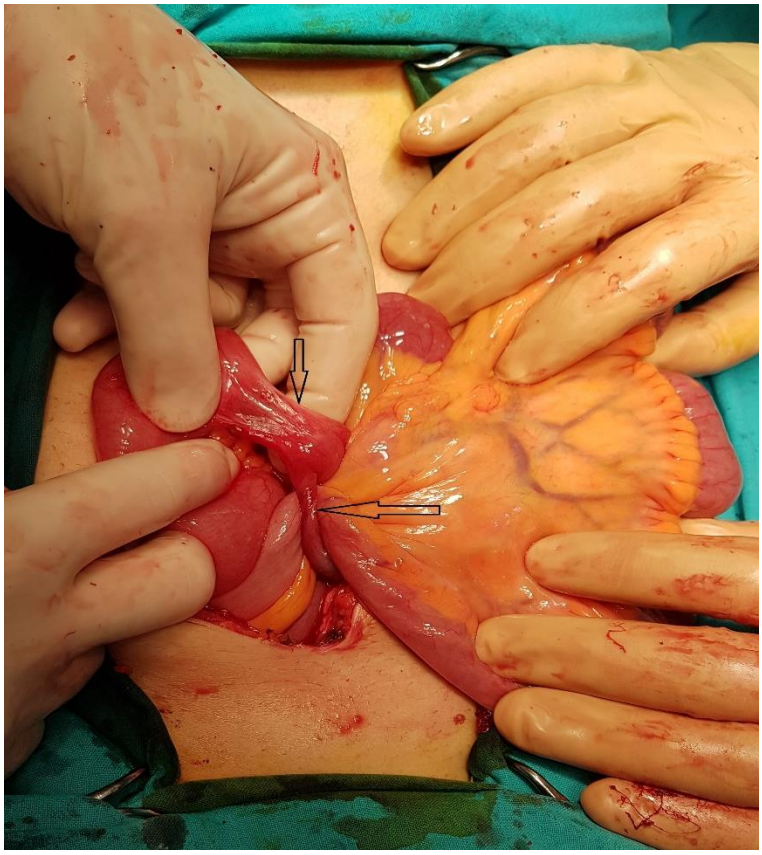

Figure 6: Two site of adhesional small bowel without obstruction

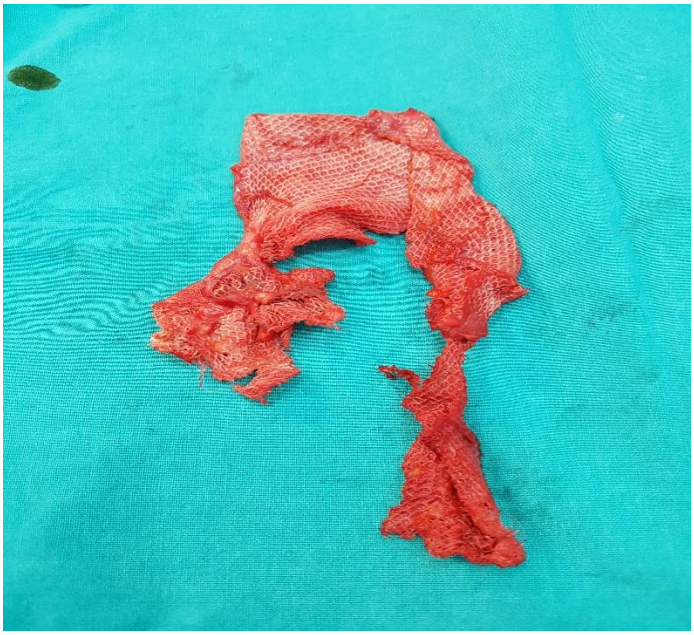

Figure 7: The agglutinated polipropilen mesh

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A 49 year old man presented to the Surgery department for abdominal pain, especially at the umbilical level where he noticed a dulge witch appeared in the last 3 months, without a progressing growing. His medical history included an ombilical hernia operated 3 years ago – onlay procedure using polipropilen mesh fixed with PGA wires. Laboratory tests were in normal parameters.

At the operation room was performed an iterative longitudinal incision witch show an agglutinated mesh on both sides of the de parietal defect. The polipropilen mesh was extracted. On a 2 cm portion the mesh was in contact with peritoneum and a parietal defect was discovered. Beginging the adhesiolysis were founded two sites where the small bowel was adherent to the mesenter making a loop in witch was inssered a part of ileum.

The defect was closed with PGA No 2 continuous suture and was applied an ultralight polipropilen mesh fixes with 3/0 Polipropilen wires. One suction drain was positioned in the subcutaneous tissue. The pacient was discharged after 3 days in good conditions.

Follow-up at one year showed a plain operation zone, without any mass or modified regional skin.

DISCUSSION:

Theodor Billroth, in 1890, come with de assumption that the best way to repair a hernia is to use a prosthetic material. Many materials used on hernia repair generated rejections, infections and recurrences. (2,12,13)

Incisional hernia is generated by different factors depending on the pacient but olso on the doctor (obesity, cardiac and pulmonary problems, sepsis, types of wires used for suture, the surgeon techniques). (1,5,6)

The recurrence for incisonal hernia is 4.8% smaller in mesh usage. In a 5 years period 1,4% of cases in witch was use polipropilen mesh were reoperate for enterocutaneus fistula, bleeding or bowel occlusion.(7). One randomized cilical trial and few small retrospective studies debate the complication generated by polipropilen mesh. (6, 8,9)

If the correct mesh is not used for the cover of an minimal 5 cm overlap the postoperative complications increase dramatically.(10,11) Lower inflammation near the mesh site reduces long-term complications despite the intense fibrosis that anchor the prosthesis in the correct tissue. Fibroblasts, foreign body giant cells, capillaries and macrophages have different actions depending on the topography and the structure of the material use. Meshes with pore >1000 μm assure a better protection from colonization of bacterial because of large filaments that facilitate the infiltration of macrophages.(14,15).

Incisonal hernia complications may be preventable by using strict rules of antisepsia, rigorous hemostasis and also correct tissue handling. Using systemic antibiotics preoperative or postoperative, collagen tampons or releasing gentamicin collagen did not shown a general solution. (16,17,18,19) “Empirical antibiotic therapy protocols for community- must be established on the basis of regular analysis of national and regional microbiological data in order to quantify and monitor the course of microbial resistance in the community.” (20)

CONCLUSIONS:

For open surgery, mesh infections are a real concern despite the correct choice of prosthetic material, the rigorous sterility and proper antibiotic coverage. Using the correct mesh and the wires for proper suture assure a low rate of mesh-related complication.

The solutions for mesh infection is the complete removal of the prosthetic material, a complete debridement of the region and a correct administration of systemic antibiotics.

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