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Case Report

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Ovarian Cancer Relapses in Polypropylene Mesh: A Case Report

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Introduction

We report a case of relapsed serous ovarian carcinoma in polypropylene mesh in a patient who underwent sacrocolpopexy followed by optimal cytoreductive surgery with adjuvant chemotherapy.

Keywords: Ovarian cancer; Polypropylene Mesh; Recurrence; Sacrocolpopexy

Case Report

A 49-year-old female was admitted to our department for exploratory laparotomy and bilateral salpingo-oophorectomy. Her chief complaint was abdominal pain, sonography and CT scans demonstrated right and left adnexal masses, 7 x 9.2 cm and 6 x 7.6 cm respectively, CA-125 was elevated to 140 IU/mL. Five months' prior admission this patient underwent a total laparoscopic hysterectomy and sacrocolpopexy for uterovaginal prolapse. There were no signs of malignancy at previous surgery. Findings in current surgery were: a 14cm cystic tumor adherent to the right ureter and vaginal cuff and a left 10cm tumor adherent to bowel and pelvic wall. We performed bilateral salpingo-oophorectomy, omentectomy and adhesionlysis. The pathology report of adnexal masses confirmed high grade serous papillary carcinoma. The surgery was successful in reaching optimal debulking with no macroscopic residual malignancy. Post-operative period was uneventful. This patient has completed 6 cycles of adjuvant chemotherapy with Carboplatin and Paclitaxel and was followed according protocol till disease progression.

Seventeen months later this patient was admitted to our department for exploratory laparotomy due to disease relapse with a solid pelvic mass of 3 x 3cm arising from the vaginal cuff and a 3 x 9 cm mass arising from the right pelvic wall according to CT scan report. CA-125 was elevated to 120 IU/mL. Findings at secondary debulking surgery were: a 3 x 3cm tumorous mass arising from the vaginal cuff adherent to the urinary bladder and another 9cm mass adherent to the right pelvic wall imbedded in the polypropylene mesh used 2 years ago during sacrocolpopexy procedure. Optimal cytoreductive debulking was achieved for the second time. During adhesionlysis the urinary bladder was dissected and repaired. Postoperative period was uneventful. Histopathology findings: serous papillary carcinoma was seen in between polypropylene mesh fibers.

Discussion

Polypropylene meshes are broadly used today [1]. Laparoscopic sacrocolpopexy is one of the common procedures for women suffering from a procidentia as well as apical vault prolapse [2]. Reports in current literature regarding carcinogenicity of meshes are controversial. The first report, by Birolini et al. in 2014 [3] of human cancer attributed to polyester mesh in two cases involved squamous cell carcinomas associated with infection after mesh implantation for abdominal hernia repair. There are few reports in non-humans showed polypropylene has been found to be carcinogenic. [4-6] only one study was performed using exactly monofilament PP, which was implanted in mice over a 2-year study period in various locations, with no tumor induction [7]. Chronic Inflammation is known to be important in carcinogenesis in human organs [8-10].

When a foreign body is inserted starts a cascade of acute inflammatory processes which eventually becomes a chronic inflammation that persists as long as the foreign body is present. Free oxygen radicals secreted during the inflammatory process increase the risk for DNA mutations by damaging DNA directly and inhibiting the mechanism of DNA damage repair resulting in tumor development which over a long chronic period has the potential to become oncogenic [11].

We can only speculate if the presence of a foreign substance triggered a cascade of events which resulted in ovarian cancer first appearance or trapped cancerous cells exactly in the same location where the polypropylene mesh was placed. It is possible that a

chronic inflammatory process which took place in the pelvic wall tissues of our patients following polypropylene mesh insertion during her first surgery could have caused DNA damage which provided grounds for faster cancer cells proliferation trapping cancerous cells at that location causing tumor progression. We used OVID, to conduct a MEDLINE search restricted to the English language and with the key words 'Ovarian cancer' and 'Mesh'. No reports were found.

Conclusion

To our knowledge, this case is the first report suggesting of ovarian cancer relapse in synthetic mesh. At this point the available data in current literature cannot strongly support the theory of cancer developing from foreign substance in humans. Therefore we do not suggest counseling patients undergoing a procedure involving polypropylene mesh placement regarding an increase chance of developing any kind of malignancy. This issue should be addressed once again when more reports are available for review.

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