

SIMULTANEOUS SURGERY FOR ABDOMINAL AORTIC ANEURYSM AND CONCOMITANT SEMI-MALIGNANT TUMOR OF THE ABDOMINAL WALL

Running head: Simultaneous Surgery for AAA and DFSP

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Ključne riječi

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Introduction

Most often the accidental findings during the abdominal aortic aneurysm (AAA) surgery are cholelithiasis, inguinal hernia, gastrointestinal cancer, renal and retroperitoneal tumors, while concomitant mesenchymal tumors are rare. Associated lesions increase the operative risk and bring into focus the question of simultaneous or staged approach [1]. As related series of patients, reported in literature, are small and results diverse, there is not enough evidence to establish reliable treatment protocols. Here we present a situation where the AAA was discovered during the

diagnostic evaluation of a protuberant cutaneous malignancy of the abdominal wall. Some considerations regarding operative technique and strategy are discussed [2].

Case report

A 63-year-old male was referred to our department because of the large abdominal wall tumor and concomitant symptomatic AAA, as confirmed by ultrasound (US) exam performed in the course of the diagnostic evaluation of the tumor.

The tumor was located in the suprapubic region, measuring 10 x 9 x 6 cm. It was an exophytic mass with lobulated texture and grey-white cut surface, firm and elastic on palpation (Fig.1). Preoperative excisional biopsy was taken. Histologically, the tumor was located in reticular dermis and subcutis and consisted of spindle and fusiform cells arranged in short fascicles that formed a storiform pattern (Fig.2). Tumor cells were monotonous and small but some cells showed moderate pleomorphism. The mitotic count ranged from 3 to 8 mitoses / 10 high power fields. There was no

necrosis. Immunohistochemically, the tumor cells showed expression for vimentin and CD34 (Fig.3), but were negative for desmin and S-100 protein which was consistent with the diagnosis of semi-malignant dermatofibrosarcoma protuberans (DFSP).

Multi-slice computed tomography (MSCT) revealed cuticular and subcuticular tumor invasion in the suprapubic region of the abdominal wall, not involving the muscle layer. The infrarenal abdominal aortic aneurysm (Fig.4) was found to be 71 mm in diameter. In consultations with the specialist for plastic and reconstructive surgery and the oncologist, the decision was made for simultaneous surgery of the abdominal wall tumor and the AAA.

The tumor was excised in general anesthesia by transverse elliptic incision with 2 cm free tumor margins, deepened to the muscle fascial layer. The anterior fascial sheath of the left rectus muscle was also excised. After the removal of the tumor, another set of instruments was prepared, and operative clothes coverings and gowns were changed. The infrarenal aneurysm was approached by full pubic to xyphoid abdominal incision, with the "Z" incision in the upper part of the wound (Fig.5, Fig.6). The AAA was resected and reconstructed with Intervascular straight silver graft, 24 mm in diameter (Fig.7). The resected part of the rectus muscle sheath was reconstructed with polypropylene mesh.

In the postoperative period there was sparse marginal necrosis and minimal serous secretion from the caudal part of the wound which was treated conservatively by changing dressings few times a day (swab cultivation showed *Candida albicans* and *Staphylococcus epidermidis*). After 23 days the patient was discharged with instructions to repeat chest, spine and pelvis X-rays, abdominal US and CT, aminotransferases, alkaline phosphatase, urea, creatinine and blood sugar, followed by a surgical and an oncological exam two weeks after the procedure, and then in monthly intervals. There was no evidence of malignancy recurrence within 10 months of follow-up.

Discussion

Sarcomas are the most frequent malignant abdominal wall tumors, usually presenting as slow-growing painless masses. The treatment of

these tumors usually requires radiotherapy and aggressive resection [3, 4], which necessitates abdominal wall reconstruction [5]. Therefore, preoperative planning based on precise evaluation of the tumor size and extension is essential.

DFSP is an uncommon, locally aggressive skin and soft tissue tumor, prone to recur locally following excision, but rarely gives far metastases [6].

A combination of a malignant tumor of the abdominal wall and an AAA is a peculiar and rather complex case. There are no established algorithms for the treatment of such concomitant lesions. In the lack of well designed studies, one should apply an individualized approach and common medical sense. Priority should be given to the lesion that presents a greater threat to the patient [1].

A malignancy should be resected first if the risk of the AAA rupture is low (asymptomatic aneurysm, diameter less than 5 cm). On the other hand, a large symptomatic AAA requires immediate reconstruction. However, postponing the tumor resection for the second stage procedure gives the tumor time to spread locally and metastasize. Simultaneous procedure should be considered if both lesions are complicated or symptomatic [1], weighing on the patient's general condition, comorbidity and relative risks and benefits of the simultaneous treatment.

There are several concerns in performing simultaneous surgery of the AAA associated with a malignancy. Prolonged operating time increases the risk of perioperative infections. Although closing of the abdominal wall with the autologous tissue is a priority to lower the risk of postoperative infections, fascial repair can contribute to the increase of the intra-abdominal pressure (IAP), especially when the excision of the abdominal wall is large, which facilitates the development of the abdominal compartment syndrome, following simultaneous AAA resection. Resection margins must be wide enough because the likelihood of the local control associated with this procedure exceeds 75% if resection margins are greater or equal to 2 cm [4, 6]. However, leaving a malignancy in the abdominal cavity or wall for a second stage operation increases the risk of tumor progression. Using the techniques of reconstructive surgery, one can alleviate some of the drawbacks of the simultaneous approach. The component separation technique provides midline fascial

advancement of 10 cm in epigastrium, 20 cm at the waistline, and 6 cm at the suprapubic area when separated bilaterally (Ramirez 1990). If this is not enough, a polypropylene mesh can be used for abdominal wall reconstruction. In cases as complex as the one described, a team approach should be employed, involving a vascular surgeon, a plastic surgeon, a pathologist and an oncologist,

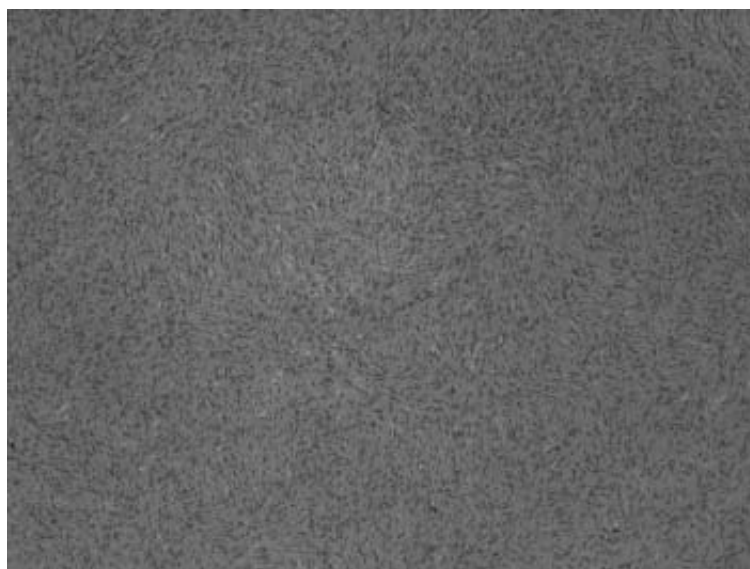
in order to choose the optimal treatment. Simultaneous procedure was chosen in this particular patient, taking into account the aneurysm size and tumor type and extension. Although we did not find a similar citation in literature, this case might contribute to unraveling the appropriate operative strategies for such concomitant lesions.

Figure legends

Fig. 1. Macroscopic appearance of protuberant dermatofibrosarcoma (the photograph was taken after performing preoperative biopsy specimen)



Fig. 2. Storiform histological pattern is a common feature of dermatofibrosarcoma protuberans (hematoxylin and eosin staining)



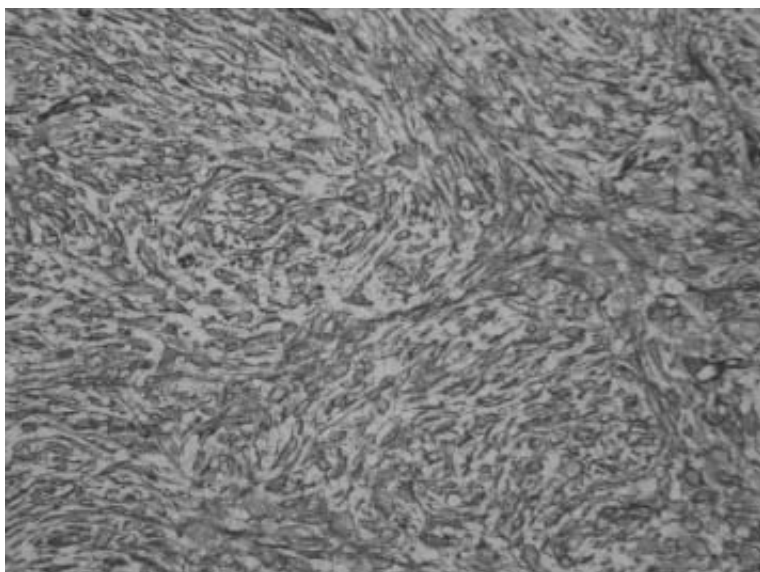


Fig. 3. Tumor cells exhibiting strong cytoplasmic immunoreactivity for CD34 (hematoxylin counterstain)



Fig. 4. MSCT-scan showing cuticular and subcuticular tumor invasion and the infrarenal AAA

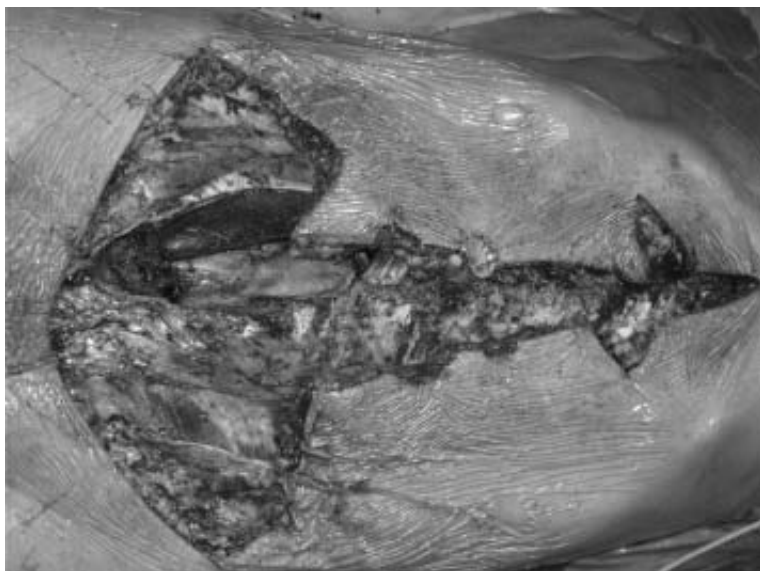


Fig. 5. Abdominal incision

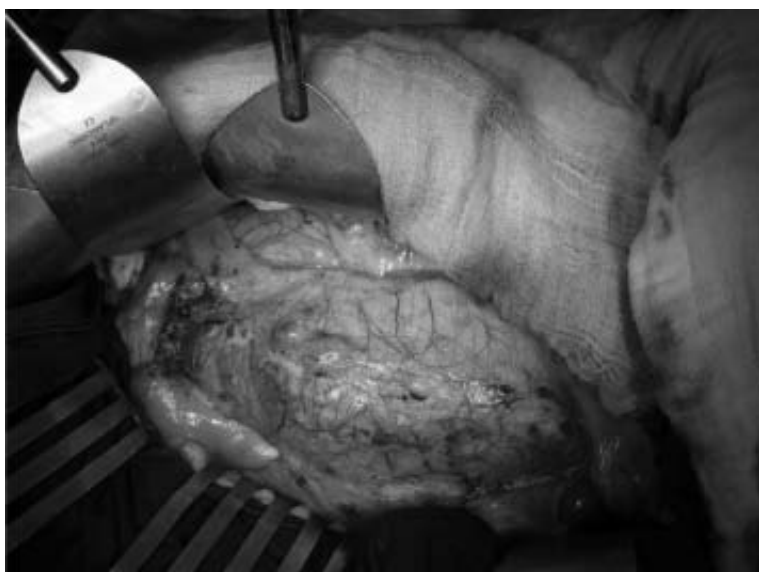


Fig. 6. Infrarenal AAA in situ, before resection



Fig. 7. Tube graft situated in place of the previously resected aneurysm

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