Case report

Resection of an abdominal dermatofibrosarcoma with reconstruction by controlateral pedicled groin flap: a case report

Abstract:

Dermatofibrosarcoma protuberans (DFS) also known as giant cell fibrosarcoma is a rare malignant skin tumor, known for being locally aggressive but exceptionally metastatic. Tumor excision must include a wide lateral margin of 5cm to minimize recurrences. Reconstruction of the defect can be done by split-thickness skin graft, local or free flap depending on exposed elements and adjacent skin.

We report in this manuscript, the case of an abdominal dermatofibrosarcoma and the reconstruction of the consecutive soft tissue defect with a pedicled groin flap in the same operative time.

Introduction:

Dermatofibrosarcoma (DFS) is a rare tumor belonging to the group of locally aggressive superficial mesenchymal neoplasm of fibroblastic derivation [1]. It is rarely metastatic but is characterized by its high risk of recurrences. The prognosis depends essentially on the quality of the resection.
We report in our article the case of a patient treated in the department of plastic surgery of University hospital of Nabeul, Tunisia, for a locally advanced DFS. Tumor resection and reconstruction of the abdominal wall defect with a controlateral pedicled groin flap were performed during the same procedure.

Presentation of the case:

We report the case of a 68 years old man, retired, with a clinical history of hypertension under treatment. He noted the appearance of an abdominal skin tumor progressively increasing in size. A prior excision was performed in another health center in 2019. Two years after the excision, the patient presented at our outpatient consultation for a recurrence of the tumor.

On physical examination, we objectified an under umbilical protruding, polylobulated, subcutaneous tumor of 7 centimeters long axis. On palpation the tumor was firm in consistency and mobile in relation to deep plane (fig 1) . The rest of the examination was unremarkable, particularly the absence of associated digestive signs and other skin tumors.

An incisional biopsy was realized objectifying a dermatofibrosarcoma .

The abdomino-pelvic scan revealed a subcutaneous mass in the right anterolateral abdominal fat, with heterogeneous enhancement measuring 75mm*75mm*60mm, infiltrating the skin planes and pushing back the the rectus abdominis muscle without invading its aponeurosis (fig 2).

Biological assessment was non specific, particularly a normal sedimentation rate and blood count.

A monobloc tumor excision was performed including the skin and the anterior aponeurosis of rectus abdominis muscle, with a macroscopic safety margin of 5 cm laterally (the umbilicus was included in this margin) . We did not use a synthetic mesh to achieve parietal closure.
The diameter of skin defect was 17 cm and was minimized by a purse-string suture (fig2).

The reconstruction of this defect was achieved by a left pedicled groin flap performed at the same time. The flap was harvested and turned approximately 110° to cover the skin defect. The donor area was closed directly (fig 3).

The postoperative follow-up was marked by a distal necrosis of the flap (fig 4), left for controlled wound healing, which was obtained in 4 weeks.

Final histology report stated uninvolved excision margins. No immunohistochemical studies were made.

After 1 year follow-up, the patient is still in complete remission (fig 5).

Figure 1 : pre operative aspect and lateral margin marked

Fig 2 : abdominal CT scan (transversal and longitudinal sections)

Figure 3 : skin defect narrowed by purse-string suture

Figure 4: immediate onset of flap

Figure 5: flap at 10 days post surgey

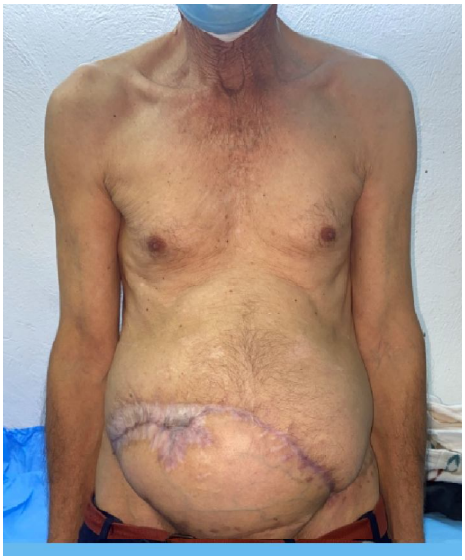

Figure 6: patient at 1 year follow up

Discussion:

Dermatofibrosarcoma protuberans is a rare intradermal low-grade cutaneous mesenchymal tumor representing less than 2% of all soft tissue sarcomas, with an estimated incidence of approximately three cases per million per year [2, 3] . DFS is an ubiquitous tumor, however the trunk is the most frequent location [4] . It can develop on healthy skin or on a preexisting scar [5]. This tumor is characterized by a low metastatic rate and a low mortality rate. Secondary metastatic lesions are exceptional, which make it a cancer with a favorable prognosis. Despite local recurrences, the prognosis is only exceptionally vital. For localized forms, the reference treatment is wide local excision (WLE) with a safety margin of 3 to 5 cm laterally and in depth with sacrifice of a healthy anatomical barrier. Safety margins are a well-discussed subject but there is no consensus stating

exactly how much of intact tissue should we respect [6]. Mohs micrograph surgery should be used if available, to minimize lateral margins and patient morbidity, as it has proven its place in therapeutic management of DFS [7].

Pedicled flaps from the groin were the workhorses for hand and forearm reconstruction in the last three decades, yet they are still relevant now. The pedicled groin flap that McGregor introduced in 1972 has several advantages in this particular case. First, it allows to harvest a large skin paddle with a primary closure of the donor site and therefore gives a better cosmetic outcome without the need for skin grafts. Second, it is a reliable flap, technically easy to harvest, reproducible among young operators and doesn't require microsurgical skills . Last, tissue edema is less likely to occur because of the excellent venous drainage at its base. Skin necrosis is rarely to occur, interesting mainly the distal border of the flap. Pedicled groin flap is occasionally used for coverage of abdominal wall defects, but it still has its indications particularly in patients with comorbidities [8,9,10].

Conclusion:

This is a case of a patient with a rare skin tumor (DFS) that lies between the benign pole of cutaneous fibroma and the malignant pole of true cutaneous fibrosarcoma. This tumor often presents a delay in diagnosis due to its slow evolution. The surgical removal of the tumor is the treatment of choice. The Mac Gregor pedicled groin flap is a very reliable "axial" flap for the reconstruction of large skin defects, essentially of the upper limb, easy with a satisfactory vessel caliber and hairless skin in most cases.

Consent :

As per international standard or university standard, patient(s) written consent has been collected and preserved by the author(s).

Ethical approval:

As per international standard or university standard written ethical approval has been collected and preserved by the author(s).

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