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CLINICAL CASE

Reconstruction of an anterior chest wall radionecrosis defect by a contralateral latissimus dorsi flap: A case report



Couverture d'une perte de substance thoracique antérieure post-radionécrose par un lambeau de grand dorsal controlatéral : case report

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KEYWORDS

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Latissimus dorsi flap;
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Summary

Introduction. — Soft tissue and bone radionecrosis are rare but serious complications may occur late after radiotherapy.

Case report. — We report the case of an 86-year-old woman with a history an infiltrating ductal carcinoma of the left breast, treated by total mastectomy, left axillary dissection and adjuvant radiotherapy. Eighteen years later, the first radionecrosis lesions appeared and grew progressively in a 6-month period. These lesions are deep, involving the anterior aspect of the 4th to the 6th ribs and infiltrating the chest wall to the left cardio-thoracic space communicating largely with the pericardium. During axillary dissection, the neurovascular pedicle of the left latissimus dorsi muscle had been severed. The first part of the operation consisted of performing a left side parietectomy of the thoracic wall with a large resection of pericardial tissue and a small myocardial patch. The second step consisted of repairing the thoracic wall defect with a contralateral musculocutaneous latissimus dorsi flap.

Conclusion. — Due to its significant axis of rotation, the latissimus dorsi muscle flap must be considered in the therapeutic algorithm for covering of contralateral anterior chest wall defects.

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MOTS CLÉS

Radionécrose cutanée ;
Ostéoradionécrose ;
Radiothérapie ;
Lambeau muscle grand dorsal ;
Carcinoma ;
Lambeau muscle latissimus dorsi

Résumé

Introduction. — La radionécrose cutanée et l'ostéoradionécrose sont des complications rares mais graves. Elles peuvent survenir tardivement par rapport au traitement initial.

Case report. — Nous décrivons les cas d'une femme de 86 présentant comme antécédent un carcinome canalaire infiltrant du sein gauche pris en charge pour mastectomie totale, curage axillaire gauche et radiothérapie adjuvante. Dix-huit ans plus tard, les premières lésions de radionécrose sont apparues avec une évolution rapide en six mois. Ces lésions sont creusantes, lysant les arcs costaux antérieurs de C4 à C6 et infiltrant la paroi thoracique jusqu'à l'espace cardiothoracique gauche avec un contact péricardique étendu. Lors du curage axillaire, le pédicule vasculo-nerveux du muscle latissimus dorsi gauche avait été sectionné. Le premier temps opératoire a consisté en une pariéctomie gauche avec résection élargie d'un patch de péricarde et une pastille de myocarde. Le deuxième temps a consisté à réparer le défaut pariétal thoracique par un lambeau musculocutané de latissimus dorsi droit contralatéral.

Conclusion. — De par son axe de rotation important, lambeau du muscle latissimus dorsi doit être présent dans l'algorithme thérapeutique pour couvrir des pertes de substance thoracique antérieure contralatérale. Une mobilisation au-delà du pilier axillaire antérieur contralatéral est possible.

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Introduction

Soft tissue and bone radionecrosis are rare but serious complications of radiotherapy [1,2] that may occur late after a complication-free period. Point out that the observed lesions are often underestimated and they are deep and extensive.

Case report

We report the case of an 86-year-old autonomous woman in good general condition, with a history of an infiltrating ductal carcinoma of the left breast treated by total mastectomy, left axillary dissection and adjuvant radiotherapy without hormone therapy, she was considered as cured. The radiotherapy was performed on the mastectomy area without information on the dose received.

Eighteen years later the initial treatment, following surgical treatment and radiotherapy the first radionecrosis lesions appeared and grew progressively within 6 months. When she first consulted, she presented with a deep cutaneous ulceration around the mastectomy scar extending deep enough to perceive the heartbeat.

A thoracic CT scan showed osteolysis of anterior aspect of the 4th to 6th ribs. The loss of substance concerns a $10 \times 6 \times 2$ cm zone infiltrating the chest wall to the left cardio-thoracic space with an extensive pericardial involvement.

Several biopsies were performed to rule out tumor recurrence. However, the only finding documented was colonization with *Staphylococcus aureus*.

During the total mastectomy, left axillary dissection, the left latissimus dorsi neurovascular pedicle had been severed. On physical examination, we notice wasting of the ipsilateral latissimus dorsi, while the contralateral muscle is sufficiently palpable. The age of the patient and the cutaneous laxity, without objective of breast reconstruction allowed this choice.

The surgical approach consisted of first, a left pariéctomy removing the anterior portion of the 4th, 5th and 6th

ribs with a large resection of pericardial tissue and a small myocardial patch. After debridement, the defect extended beyond the left anterior axillary line. The size of tissue resected was $10.5 \times 8 \times 1.5$ cm (Fig. 1). The pericardium was closed using a large-pored absorbable Vicryl mesh. The thoracic cage reconstruction was carried out using a non-absorbable Erceplaque mesh without the use of a Borrelly sliding splint stapler.

The second surgical step consisted of covering the rib cage defect with a contralateral pedicled musculocutaneous latissimus dorsi flap.

The patient was placed in a supine position with a block underneath the scapula. The skin incision was made along the anterior border of the right latissimus dorsi muscle (Fig. 1). The muscle was raised starting distally and going proximally with a distal cutaneous paddle of 13×9 cm. The portion of the flap above the skin paddle was de-epithelialized and buried to preserve the dermal vascular plexus (Fig. 2).

The flap was passed through a tunnel made underneath the right pectoralis major muscle whose costal and sternal attachments were sectioned. Then the flap was placed over the mesh used to cover the chest wall defect.

The donor and recipient areas were closed primarily without tension after leaving suctions drains and a chest tube in place.

Postoperative histopathology made on resected tissues results confirmed the diagnosis of secondarily infected cutaneous radionecrosis lesions.

At one year postoperatively, the flap is well integrated (Fig. 3), with the heartbeat being visible underneath it. The patient has regained her complete autonomy.

Discussion

Soft tissue and bone radionecrosis is a late but rare complication of radiotherapy [3]. In France, in recent years, its incidence has been decreasing due to the use of new devices able to specifically target the area to be treated [4]. The right treatment consist in extensive surgical debridement of

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