LETTER / Genito-urinary

Burned-out tumour: A case report

É. Peroux, A. Thome, Y. Geffroy, B.N. Guema, F.-X. Arnaud, C.A. Teriitehau, J. Baccialone, J. Potet*

Department of Radiology, Hôpital d’instruction des Armées Percy, Avenue Henri-Barbusse, 92140 Clamart, France

The term “burned-out” tumour refers to a rare occurrence where a primary germ cell tumour of the testis has partially or totally regressed. The authors report the case of a burned-out tumour of the testis found by ultrasound examination in a young man presenting retroperitoneal metastases. The interest of this case lies in the rareness of this phenomenon and the importance of carrying out a systematic testicular ultrasound examination in case of the discovery of a retroperitoneal mass in a young man.

Case report

An 18-year-old patient, without antecedents, consulted the emergency ward for pain in the right hypochondrium, without fever. The clinical examination found a mass in the right hypochondrium. The initial laboratory tests were normal. A private practice abdominal ultrasound examination revealed retroperitoneal masses. An emergency complementary X-ray computed tomography was carried out. The abdomino-pelvic tomography, carried out after injection, at portal time, revealed a large retroperitoneal tumoral process. This right latero-cava, heterogeneous, 8 cm mass, compressing the neighbouring structures, presented a hypodense centre, attesting to its necrotico-cystic nature (Fig. 1a, b). Other similar small formations were visible under this mass (Fig. 1b). In view of these images, a lymphoma, a sarcoma or lymph node metastases of a germ cell tumour were possible. A testicular ultrasound was carried out and revealed two macro-califications of the right testis: an upper polar and a lower polar. In contact with the lower calcification, a well-defined hypoechoic infra-centimetric formation was individualised (Fig. 2), suggesting the diagnosis of a burned-out tumour of the testis. Tumour markers were searched for: the alpha fetoprotein (AFP) level was much increased (24520kIU/L) and the hCG level was normal. These laboratory results indicated a non-seminoma germ cell tumour. The anatomopathological analysis of the right testis after
orchidectomy revealed two fibrohyalin nodes of a cicatricial appearance infiltrated by several inflammatory cells, with the presence of calcifications and deposits of hemosiderinic pigment. Seats of intratubular germ cell neoplasia were found at the contact, confirming the diagnosis of burned-out tumour. Treatment by chemotherapy was initiated. In view of the significant regression of the retroperitoneal masses, the patient then benefited from resection of the remains of the tumour. The patient is currently considered to be in full remission.

Discussion

Cancer of the testis is rare (1% of all cancers in man). However, it is the most common cancer in young men. 90 to 95% of all primary testicular tumours initially develop from germ cells [1]. Germ cell tumours include seminomatous tumours, non-seminomatous tumours (embryonic carcinoma, tumour of the yolk sac, teratoma, choriocarcinoma) and mixed forms. The term burned-out tumour refers to a primary germ cell neoplasm that has partially or totally regressed [1]. Prym first described this phenomenon in 1927 [2,3]. The hypotheses accounting for the regression of the tumour are oriented towards a tumoral tendency to spontaneous necrosis, an increase in its intrinsic metabolic activity and immunology mechanisms [2,4]. The histological type of tumour is often an embryonic carcinoma, a mixed tumour or a choriocarcinoma, more rarely a seminoma [1]. The metastases mainly develop by lymph node route. Only the pure choriocarcinoma is propagated solely by haematogenenic route [1]. Clinically non-detectable, it is individualised by testicular ultrasound [5], in patients that developed a metastasis at a distance from the retroperitoneal lymph

Figure 1.  Abdomino-pelvic tomography after injection of iodine contrast product at portal time. Axial section (a) and sagittal section (b): retroperitoneal masses.

Figure 2.  Ultrasound examination of the right testis: a) testicular calcifications (white arrow) and b) hypoechogenic node (white arrow) in contact with a calcification (tip of white arrow).
nodes [1]. Cases of extra-lymph node metastases have also been described [6]. The ultrasound reveals a hyperechoic, sometimes calcified area, corresponding to the tumoral scar, a hypo or hyperechoic area that may be observed at the contact, corresponding to the residual tumour [1–3]. The abdomino-pelvic ultrasound and imaging detect retroperitoneal adenomegalies. The tumoral markers help determine the histological type of tumour. The AFP level increases in 70% of all non-seminomatous tumours (embryonic carcinoma) and remains normal in cases of pure seminoma or choriocarcinoma. The hCG level increases in all cases of choriocarcinoma, in 60% of the cases of embryonic carcinoma and in 10% of the cases of seminomatous tumour and remains normal in 10% of the non-seminomatous tumours [1].

The diagnosis is anatomopathological. The lesion appears in the form of a fibrous, variably hyalinised zone, containing deposits of calcifications and haemosiderin as well as rare inflammatory cells [7]. Seats of intratubular germ cell neoplasia may be found at the contact. The treatment is that of an evolved malignant testicular tumour [8].

**Conclusion**

The burned-out testicular tumour corresponds to a primary germ cell neoplasia that has partially or totally regressed. Non-palpable, it is found during a testicular ultrasound examination in the form of a cicatricial image in patients that developed a metastasis at a distance from the retroperitoneal lymph nodes. This case therefore underlines the indispensable and systematic nature of the testicular ultrasound examination in case of the discovery of a retroperitoneal mass syndrome in a young man.

**Disclosure of interest**

The authors declare that they have no conflicts of interest concerning this article.

**References**