Splenic metastasis from gastrointestinal neoplasms : a review

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Abstract

Spleen metastases from solid tumours are rather exceptional, especially for those located in the digestive tract. Although these lesions are usually associated with multivisceral disease at terminal stage, several cases of isolated lesions have also been described in the literature.

Diagnosis of spleen lesions associated with multivisceral disease rarely influences patient's outcome. On the other hand, isolated, only-splenic lesions could be curatively treated, allowing physicians to obtain better patient's survival. The aim of this article is therefore to review and summarize a systematic search of all the literature in English based on a Medline search (Pubmed) carried out from January 2000 to February 2011, focusing on only-spleen lesions secondary to digestive tract cancers, and pointing out diagnostic and treatment challenges medical oncologists have to face in their clinical practice. (Acta gastroenterol. belg., **2012**, 75, **3-4**).

Key words : solid tumours, spleen metastases.

Although the spleen is a highly vascularised organ, metastasis remains a very rare situation, with a prevalence of 1 to 5% in the literature (1,2). Metastatic spleen involvement is considered as originated from haematogenous dissemination more than lymphatic spread (3). However, since spleen lesions are quite uncommon, many speculative theories have been suggested to explain this rarity, among which the potential potent destruction of malignant cells in the spleen, related to the inhibitory effect of the splenic microenvironment on the growth of metastatic cells (4). The absence of afferent lymphatics, the constant blood flow through the spleen and eventually the sharp angle of the splenic artery with the celiac axis are amongst mechanical factors suggested as inhibiting metastatic development (5,6).

Spleen involvement is principally diagnosed in a context of multivisceral metastatic cancer at terminal stage. In that setting, breast, lung, ovarian, colorectal, gastric carcinomas and skin melanoma are the most common primary sources responsible for spleen lesions (2). They usually present as multiple and asymptomatic metastases diagnosed by incidental radiological assessment performed either in the regular follow-up of patients with cancer or in the workup at the time of the primary tumor diagnosis. However, fatigue, weight loss, fever, abdominal pain, splenomegaly, anemia or thrombocytopenia due to hypersplenism, and more rarely splenic rupture can be observed (3).

In case of only-splenic metastatic disease, differential diagnosis with primary splenic tumors including benign lesions is usually made because of a history of malignant disease. Apart from this, Mestner *et al*. studied the interest of performing 18-Fluorodeoxyglucose Positron Emission Tomography (18-FDG PET) Scanning in patients suffering from either hematological or solid tumors. They showed a 100% sensitivity and specificity in diagnosing splenic metastases in 68 patients with known primary malignancies (7). Since clinicians are rather reluctant to biopsy such lesions, 18-FDG PET might be of help in defining the malignant behavior of splenic masses, especially for those coming from the digestive tract, these tumors commonly showing high avidity to the 18-FDG.

Approximately 50 cases of only-spleen involvement secondary to digestive tract tumors have been described so far in the literature since January 2000 (Table 1). Colon cancer is the main cause, followed by gastric and hepatocellular carcinomas (3,8-12). Rare situations such as esophageal or anal squamous cell carcinoma have also been described.

Most of lesions are issued from adenocarcinomas (82%), followed by squamous cell carcinomas and hepatocellular carcinomas (9%) (1,2,5,13).

Pathological diagnosis is principally made on splenectomy more than on biopsies, clinicians being unenthusiastic to biopsy a hypervascularized organ. However, Gomez-Rubio *et al*. recently suggested that fine-needle biopsy was safe and effective with 3.8% of hemorrhage post core-needle biopsy and no bleeding with fine-needle aspiration (14,15). These results should be taken into account when differential diagnosis should be made.

The clinical impact of discovering such lesions in a context of multivisceral disease is rather low. However, in case of only-splenic involvement, some authors consider patients eligible for surgical treatment, which is already routinely performed in pulmonary or hepatic metastases from colorectal or neuroendocrine tumors (16,17). De Wilt *et al*. published a series of 15 patients operated by splenectomy for either symptomatic (8) or spleen-only (7) metastases from melanoma, a particularly aggressive tumor. The sub-group of patient with spleen-only lesions had a median overall survival of

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Table 1. — **Cases of spleen metastases originating from digestive tract tumors**

Tumor type	N	Histological finding	References
Colorectal	26	Adenocarcinoma	(3,18-23)
Stomach	9	Adenocarcinoma/ Hepatoid carcinoma 8/1	(3,24)
Esophagus	4	Squamous cell carcinoma	(3,25)
Liver	8	Hepatocellular carcinoma	(8-12)
Anus	1	Squamous cell carcinoma	Personnel case

23 months, with 2 patients disease-free at 2 years (13). A recent case published by our group demonstrated the same results in an exceptional case of a very aggressive poorly differentiated squamous cell carcinoma of the anus.

Conclusions and prospect for future research

In conclusion, spleen involvement is a rare metastatic site, rather exceptional in digestive tract tumors. Radical splenectomy for only-spleen lesions may achieve long-term survival despite aggressive tumor behavior. Close radiological follow-up allows physicians to quickly detect recurrences, which can be rapidly managed by adequate surgery. To date, many follow-up guidelines used for gastrointestinal malignancies are mainly based upon physical examination and work-up performed when symptoms potentially related to the disease appear. Since some recurrences are asymptomatic, like for spleen lesions, we point out the potential need for close follow-up in some patients with a primary tumor for which metastatic recurrence can be curatively treated if early diagnosed.

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