Unusual association of diseases/symptoms

Isolated metachronous splenic metastasis from renal cell carcinoma after 5 years

Thiago Franchi Nunes,¹ Denis Szejnfeld,¹ Luciana Nakao Odashiro Mijji,² Suzan Menasce Goldman³¹Department of Clinical Radiology, Universidade Federal de São Paulo (UNIFESP), São Paulo, Brazil²Department of Pathology, Universidade Federal de São Paulo (UNIFESP), São Paulo, Brazil³Department of Radiology, Universidade Federal de São Paulo (UNIFESP), São Paulo, Brazil

Correspondence to Dr Thiago Franchi Nunes; thiagofranchi@hotmail.com

Summary

Primary and metastatic tumours of the spleen are uncommon. The incidence of isolated metastasis from other organs is less than 1%. We report the case of a 55-year-old woman with clear cell carcinoma of the kidney, who underwent radical nephrectomy. After a 5-year follow-up period, a hypervascular nodule was detected in the spleen on MRI. Six months later, control MRI showed that its appearance had changed to a hypervascular mass with areas of central necrosis. A splenectomy was performed and histopathological examination of the spleen confirmed the presence of clear cell carcinoma with infiltration of the capsule. This is only the seventh case described in the literature of isolated splenic metastasis from clear cell carcinoma and the first such case containing MRI.

BACKGROUND

This paper is only the seventh in the literature to describe isolated splenic metastasis from clear cell carcinoma. It is the first case report of its kind containing MRI.

CASE PRESENTATION

In 2005, a 55-year-old female patient underwent radical nephrectomy by conventional technique (through an incision in the lumbar region) for renal cell carcinoma (RCC) of the clear cell subtype (pT1b pV0, pN0; Fuhrman grade 2) diagnosed incidentally during routine preoperative ultrasound for gastroplasty. The dimensions of the tumour were 5.0×5.0×4.0 cm, and it was located in the middle third of the left kidney occupying approximately 40% of the renal parenchyma. The immediate post-operative period was without significant changes. The tumour was completely resected at the first operation. There was no renal vein involvement during radiological staging, during surgery, or in the anatomopathological examination. Retroperitoneal lymphadenectomy of the renal hilum was performed, and conventional pathological analysis of all harvested lymph nodes yielded negative results.

The patient was included in the routine five-year follow-up protocol of the institution for surveillance following surgery for RCC, which is based on the European Association of Urology guidelines.¹ All chest x-rays performed during the follow-up period yielded negative results. Five years after surgical treatment, follow-up CT scan showed a small splenic lesion, and MRI was performed for further evaluation. MRI revealed a hypervascular nodule measuring 1 cm and located in the lower pole of the spleen on the medial surface. The findings were highly suggestive of splenic haemangioma (figure 1). Thus, MRI was included in the follow-up scheme (to be performed after a 6-month period) to monitor the splenic lesion. Six months later, control MRI showed a marked

increase in the lesion, revealing a hypervascular mass of 4 cm with areas of central necrosis (figure 2). No lesions were observed in other organs or in the left renal area.

Figure 1 T2-weighted (A) axial and (B) postcontrast axial MRI displaying the lower pole of the spleen (arrow).

Figure 2 T2-weighted (A) axial and (B) postcontrast axial MRI displaying a mass in the lower pole of the spleen (arrow).

Bone scintigraphy was performed after the development of the splenic lesion, which yielded negative results. The patient was referred for surgical treatment.

Surgical treatment was accomplished by median laparotomy. A splenectomy was performed without immediate or late complications. The surgical specimen was sent for histological and immunohistochemical analysis immediately following extraction.

Immunohistochemistry confirmed the presence of a splenic mass measuring 4.0×3.7×3.5 cm, occupying the lower pole and showing central necrosis of 25%. There was infiltration of the splenic capsule without involvement of the hilum (figure 3). Microscopic examination revealed the presence of tissue consistent with RCC (AE1/AE3, CD10, factor VIII-positive cells and vimentin-positive cells; figure 4).

OUTCOME AND FOLLOW-UP

The patient has been followed up at 6-month intervals by MRI of the abdomen and pelvis, and was free of recurrence at the time of the last scan. The patient is currently in excellent general health.

DISCUSSION

A total of 58 240 new cases of kidney cancer and 13 040 deaths were predicted to occur in the USA in 2010, representing approximately 4% of all new cases of primary cancer diagnosed in that year.²

To date, complete surgical resection remains the only curative treatment for malignancies of the kidney. However, relapse occurs in approximately 20–30% of patients with localised tumours. Most recurrences appear within three years after surgery, with a mean time for recurrence ranging from 1 to 3 years.³ Occasionally, late tumour recurrence may occur many years after initial treatment. The most common sites where relapse might occur are the lungs, bones, nephrectomy site, brain, liver and contralateral kidney.⁴

Figure 3 Macroscopic specimen of the spleen showing an oval-shaped lesion.

Figure 4 Microscopic analysis. (A) Immunohistochemistry—AE1/AE3—focal positivity. (B) Immunohistochemistry—vimentin—diffuse positivity. (C) Immunohistochemistry—CD10+.

The occurrence of relapse after nephrectomy is difficult to predict, relying heavily on analysis of the resected specimen. In the present case, retroperitoneal lymphadenectomy was performed and harvested lymph nodes showed negative results on pathological analysis (the total number of harvested nodes is not available). Nevertheless, a randomised trial on radical nephrectomy, with and without retroperitoneal lymphadenectomy, reported preliminary results suggesting that lymphadenectomy may have had a benefit on survival of a small subgroup of patients with minimal lymph node involvement who underwent lymphadenectomy.⁵

Splenic metastasis from RCC is a rare event, and very few cases have been reported so far. These metastases are clinically silent and typically discovered during autopsy or at the time of diagnosis when associated with metastasis to other organs. Approximately 30% of patients with RCC already have distant metastasis at the time of diagnosis and the sites most commonly affected are the lungs, bones, liver, lymph nodes, adrenal glands and brain.⁶

Leibovich *et al*⁷ conducted a retrospective study which analysed 2088 nephrectomies in patients with M0 RCC of the clear cell subtype and demonstrated that 29.3% of patients had metachronous metastases with a mean of 1.5 years (ranging from 0 to 25 years). The papillary and chromophobe subtypes showed late metastases, with a prevalence of 7% and 11% and a mean time of 2.1 and 1.5 years, respectively.

Sauer *et al*⁸ analysed 6137 patients with metastatic disease. Fifty-nine patients had splenic metastases (0.96%). Of these, 47% were synchronous metastases and 53% were metachronous. Only three patients had isolated splenic metastasis.

Currently, secondary lesions of the spleen are mainly found in imaging examinations performed in the follow-up of patients with a history of cancer. CT and MRI are the main diagnostic imaging methods used in the characterisation and staging of lesions.⁸ At MRI, metastases usually appear as hyperintense masses on T2-weighted images and hypointense to isointense masses on T1-weighted images. The degree and characteristics of contrast enhancement depend on the nature and histological subtype of the underlying primary neoplasm.⁹

Taking into consideration that secondary lesions of the spleen are uncommon and that only a small percentage of surgical interventions are necessary, splenectomy should be the treatment of choice in cases of metachronous metastases because of the high rates of cure and disease-free survival observed in these patients.⁸

Learning points

- ▶ Few cases of splenic metastasis from renal cell carcinoma have been reported.
- ▶ Recurrence rate following radical nephrectomy is high (20–30%).
- ▶ We must consider any suspected splenic lesion when treating an oncology patient.
- ▶ The treatment of choice is undoubtedly the complete resection of the tumour that results in an important and prolonged survival.

Competing interests None.

Patient consent Obtained.

REFERENCES

1. European Association of Urology. Online Guidelines. <http://www.uroweb.org/guidelines/online-guidelines/> (accessed 3 September 2012).
2. Jemal A, Siegel R, Xu J, *et al*. Cancer statistics, 2010. *CA Cancer J Clin* 2010;**60**:277–300.
3. Sandoock DS, Seftel AD, Resnick MI, *et al*. A new protocol for the follow-up of renal cell carcinoma based on pathological stage. *J Urol* 1995;**154**:28–31.

4. **Chae EJ**, Kim JK, Kim SH, *et al*. Renal cell carcinoma: analysis of postoperative recurrence patterns. *Radiology* 2005;**234**:189–96.
5. **Giuliani L**, Giberti C, Martorana G, *et al*. Radical extensive surgery for renal cell carcinoma: long-term results and prognostic factors. *J Urol* 1990;**143**:468–73; discussion 73–4.
6. **Ielapo B**, Mazzetti C, Venditti D, *et al*. A case of metachronous splenic metastasis from renal cell carcinoma after 14 years. *Int J Surg* 2010;**8**:353–5.
7. **Leibovich BC**, Lohse CM, Crispen PL, *et al*. Histological subtype is an independent predictor of outcome for patients with renal cell carcinoma. *J Urol* 2010;**183**:1309–15.
8. **Sauer J**, Sobolewski K, Dommisch K. Splenic metastases—not a frequent problem, but an underestimate location of metastases: epidemiology and course. *J Cancer Res Clin Oncol* 2009;**135**:667–71.
9. **Elsayes KM**, Narra VR, Mukundan G, *et al*. MR imaging of the spleen: spectrum of abnormalities. *Radiographics* 2005;**25**:967–82.

Copyright 2012 BMJ Publishing Group. All rights reserved. For permission to reuse any of this content visit <http://group.bmj.com/group/rights-licensing/permissions>.
BMJ Case Report Fellows may re-use this article for personal use and teaching without any further permission.

Please cite this article as follows (you will need to access the article online to obtain the date of publication).

Nunes TF, Szejnfeld D, Mijji LNO, Goldman SM. Isolated metachronous splenic metastasis from renal cell carcinoma after 5 years. *BMJ Case Reports* 2012;10.1136/bcr-2012-006992, Published XXX

Become a Fellow of BMJ Case Reports today and you can:

- ▶ Submit as many cases as you like
- ▶ Enjoy fast sympathetic peer review and rapid publication of accepted articles
- ▶ Access all the published articles
- ▶ Re-use any of the published material for personal use and teaching without further permission

For information on Institutional Fellowships contact consortiasales@bmjgroup.com

Visit casereports.bmj.com for more articles like this and to become a Fellow