Title page

Full title: Squamous cell carcinoma of unknown primary masquerading as multiple splenic abscesses

Running head: Squamous Cell Carcinoma: unknown primary

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Abstract:

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A 49 year old Indian man presented with sudden onset of severe left sided pleuritic chest pain, left upper quadrant abdominal pain and intermittent low grade fevers. His past medical history was a thirty pack year of smoking and a recent periodontal infection. There was no family history of malignancy. He migrated to Australia 3 years prior, after living in India, England and Hong Kong previously.

On examination, he had finger clubbing, a soft systolic murmur and a palpable spleen. There was no lymphadenopathy. Skin examination did not reveal any suspicious lesions. A septic work-up yielded elevated inflammatory markers, negative blood cultures and HIV serology. His transoesophageal echocardiogram was negative for infective endocarditis.

An abdominal ultrasound revealed non-specific splenic hilar cystic lesions with adjacent parenchymal heterogeneity. On computed tomography (CT) as seen in Figure 1-A and 1-B, the spleen appeared heterogeneous with multiple rim enhancing fluid attenuation lesions up to 5.4cm and small volume of perisplenic fluid. These findings were radiologically consistent with multifocal splenic abscesses.

The patient was treated with a course of intravenous flucloxacillin, ceftriaxone and

metronidazole. He was subsequently discharged as his symptoms and inflammatory markers improved.

Two months later, he represented with progressive shortness of breath, night sweats, lethargy and three kilograms of weight loss. CRP remained elevated at 109. Repeat abdominal CT revealed significant progression with new splenomegaly consequent to enlarging lesions (the largest up to 7.7cm – Figure A and B). Both the pleural effusion and splenic lesions were drained, yielding an exudate consistent with a splenic abscess and were negative for microorganisms.

Tumour markers, LDH, calcium and CT brain, neck, chest and pelvis were done to investigate for malignancy. CEA was mildly elevated (14.4). All other investigations were unremarkable. Bilateral axillary enlargement was noted on positron emission tomography (PET). Subsequent core biopsy of the left axillary node was negative for malignant cells. Bone marrow and pleural fluid immune-phenotyping were negative for myeloproliferative and lymphoproliferative disorders. Otolaryngology review and gastroscopy were negative for a malignant primary.

The patient proceeded to have a splenectomy due to suspicion of malignancy. Intra-operatively, the enlarged multi-cystic spleen was found to be tethered to the diaphragm, stomach and tail of pancreas. Hence, distal pancreatectomy was also performed. Histopathology of the spleen revealed a multifocal squamous cell carcinoma with capsular involvement and disruption, invading hilar fat with focal perineural invasion. The distal pancreas was normal and clearly separated from the

tumour by mature fibrous tissue. Given that the spleen was adherent to the diaphragm and the potential risk of tumour seeding via the drain tract, the patient was treated with adjuvant cisplatin-fluoropyrimidine based chemo-radiotherapy.

This report describes a case of metastatic splenic squamous cell carcinoma of unknown primary masquerading as multiple splenic abscesses. Solitary neoplasms of the spleen are a rare phenomenon, as splenic metastases usually present in the setting of end stage disseminated malignancy.¹ Squamous cell carcinomas of the spleen are exceptionally uncommon. Only 40 cases of solitary splenic metastases have been described and these have always been in the setting of a detected primary tumour.² Liver, lung and pancreatic malignancies are the most common reported in autopsy studies.³ Late metastases have also been reported in choriocarcinomas, melanomas and breast carcinomas.

Radiologically, metastatic lesions may be difficult to distinguish from splenic abscesses. Both can present as rim enhancing low density lesions with little in the way of differentiating features on CT and ultrasound. Central liquefaction or a low density lesion are considered more predictive for abscess. However, central necrosis in a malignant lesion can produce a similar appearance. Fine needle aspiration is the next diagnostic step but if this is equivocal, a surgical specimen via splenectomy with immunostaining is critical in making the diagnosis.

Thus far, there have been no documented cases of isolated primary splenic

squamous cell carcinoma. In spite of advancements in imaging and microarray technology, up to a third of cancers in post necropsy studies have no primary found.⁴ The inability to identify a primary tumour suggests either early regression of the tumour or microscopic disease that is unable to be detected. It may be likely that late occurrence of isolated splenic metastases may develop from early blood-borne micro-metastasis within the spleen after a period of clinical latency.

In conclusion, we report a case of a splenic squamous cell carcinoma with no identifiable primary lesion, which is a unique feature of this case. Splenectomy was not only of diagnostic importance but also provided therapeutic benefit. The patient has recovered well and is currently in complete remission.

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Figure 1-A

Axial post contrast CT image demonstrates multifocal mixed low density lesions involving much of the spleen. Little normal splenic tissue is visualised and the gland is overall enlarged.

Figure 1-B

Coronal post contrast CT image demonstrates multifocal mixed low density lesions within an enlarged spleen. Associated features include inferior displacement of the left kidney, elevation of the left hemidiaphragm and a moderate ipsilateral pleural effusion.

Figure 1-A.tif

Figure 1-B.tif

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