

CASE REPORT

Isolated splenic metastasis from carcinoma of the breast

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A case of isolated splenic metastasis from carcinoma of the breast in a 54 year old woman, two years after treatment for breast carcinoma, is presented. There was no involvement of other organs like liver, bone, lungs, etc. The patient underwent splenectomy and recovered without any complications. This case is being reported because of the rarity of the lesion.

Breast carcinoma with visceral metastasis to liver, bones, lungs, etc is common. Secondary metastasis in spleen, on the other hand, is a rare entity. Though it may occur along with other visceral metastasis, isolated involvement of spleen has not yet been reported.

CASE REPORT

A 54 year old woman presented with left hypochondrial pain and mild fever of one month's duration. She was known to have asthma and hypertension, and she had been operated on for carcinoma of the breast (tumour, node, and metastasis staging: T₂N₁M₀) by modified radical mastectomy two years earlier. The histopathological examination showed infiltrating duct carcinoma with three metastatic lymph nodes. Other possible sites of spread revealed no metastasis. There was no family history of breast cancer. The patient received chemotherapy (cyclophosphamide, methotrexate, and 5-fluorouracil; six cycles) and was on tamoxifen. Over the previous two years she had not had any significant illness.

On physical examination, the patient was pale but moderately nourished. Abdominal examination revealed a mass 5 cm below the left costal margin, moving with respiration, directed towards right iliac fossa (splenomegaly). The liver was not palpable. There was no other palpable mass or ascites. Vaginal and rectal examinations were normal. The mastectomy bed, contralateral breast, and both axilla were normal. Haematological analysis showed anaemia and leucocytosis. Biochemical parameters including liver function tests and renal function tests were within normal limits. An ultrasonogram of the abdomen showed splenomegaly with a large cystic lesion in the spleen. Computed tomography of the abdomen and pelvis revealed an enlarged spleen containing a well circumscribed solitary hypodense area. The liver, retroperitoneum, and pelvis were normal. Computed tomography of the chest was normal. A splenic abscess or metastatic lesion to the spleen were considered. As there were no other lesions, the patient was prepared for laparotomy and splenectomy.

Peroperatively the spleen was enlarged with an irregular surface and numerous adhesions. Few lymph nodes were present in the splenic hilum. The liver, bowels, and other viscera were normal; there was no ascites. Splenectomy was done and the postoperative period was uneventful. The patient was followed up for six months, with ultrasound scan of the abdomen, and there was no persistence or recurrent disease.

The spleen was 12 × 11 × 8 cm, weighing 500 g, with an irregular surface. Cut section showed fleshy growth with extensive necrosis, 10 cm in diameter, with a rim of splenic

Learning points

- Isolated metastasis to spleen from breast carcinoma is a rarity.
- Immunocompetency and angiostats probably explain the rarity of tumour metastasis to spleen.
- Splenectomy provides good survival advantage in isolated metastasis to spleen.

tissue all around. Microscopic examination showed sheets and nests of cells having eosinophilic cytoplasm with pleomorphic hyperchromatic vesicular nuclei having prominent nucleoli. Hence diagnosis was established as splenic metastasis from infiltrating duct carcinoma of the breast.

DISCUSSION

Metastatic lesions of spleen are as such a rarity. It may occur as part of systemic metastasis to viscera like liver, lungs, bone, kidney, etc.¹ Studies (mainly necropsies) reveal that the most important primary sites, for metastasis to spleen, are skin melanoma (34%), breast carcinoma (12%), ovary (12%), lung (9%), and colon and rectum (10%).^{2,3} Two cases of breast carcinoma diffusely metastasizing to the spleen, presenting with idiopathic thrombocytopenic purpura, have been reported.⁴ But no case of isolated metastasis to the spleen from carcinoma of the breast has been reported. A solitary metastasis of a non-lymphatic organ may originate from sites like the ovary, endometrium, skin, lung, prostate, oesophagus, germ cell tumour of testis, thyroid cancer, and hepatocellular carcinoma.⁵⁻⁹ A solitary metastasis from carcinoid tumour of the lung eight years postoperatively has been reported. An isolated metastasis from colon cancer to the spleen and splenectomy, with a follow up of 12 months, was reported in six cases.⁸

Though the spleen has a rich blood supply, even the haematogenously metastasizing tumours are rare. In a review of about 240 necropsies of cancer patients, Kettle noted a 1.4% incidence of splenic metastases and suggested that contractions of the spleen may prevent malignant emboli from implanting and growing in the spleen.^{2,7} Other interesting explanations include lack of afferent lymphatics to the spleen, and the sharp origin of the splenic artery from the coeliac trunk, which prevents malignant emboli from coming into the splenic artery stream.¹⁰

Tumour expansion and metastasis occur mainly by new vessel formation (angiogenesis). It is hypothesised that the spleen produces an antiangiogenesis factor (angiostatin) making it immune to metastasis compared with other organs.^{11,12} The "immunological surveillance" produced by immunocompetent cells, which are abundant in the spleen, helps in resisting the implantation of tumour cells.¹³

In case of isolated metastasis to spleen, splenectomy is justifiable, since it has a low complication rate and potential long term survival is higher.^{2,14} The surgery was supplemented by another phase of chemotherapy (cyclophosphamide, methotrexate, and 5-fluorouracil regimen). Long term survival after splenectomy for isolated metastasis is yet to be reported.

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REFERENCES

- 1 **Cortran RS**, Kumar V, Robbin SL. Splenic tumor. *Robbins' pathologic basis of disease*. 5th Ed. Philadelphia: W B Saunders, 1994: 667-72.
- 2 **Indudhara R**, Levin HS, Church J. Isolated splenic metastases from colon cancer. *South Med J* 1997;**90**:633-6.
- 3 **Berge T**. Splenic metastasis: frequencies and patterns. *Acta Pathol Microbiol Scand* 1974;**82**:499-506.
- 4 **Cummings OW**, Mazur MT. Breast carcinoma diffusing metastatic to the spleen: a report of two cases presenting as idiopathic thrombocytopenic purpura. *Am J Clin Pathol* 1992;**97**:484-9.
- 5 **Klein B**, Stein M, Kuten A, *et al*. Splenomegaly and solitary spleen metastasis in solid tumors. *Cancer* 1987;**60**:100-2.
- 6 **Warren S**, Davis AH. Studies on tumor metastasis: V. The metastasis of carcinoma to spleen. *Am J Cancer* 1934;**21**:517-33.
- 7 **Kettle EH**. Carcinomatous metastasis in the spleen. *J Path Bact* 1912;**17**:40-6.
- 8 **Weathers BK**, Modesto VL, Gordon D. Isolated splenic metastasis from colorectal carcinoma. *Dis Colon Rectum* 1999;**42**:345-8.
- 9 **Geetha N**, Hussain BM, Ajithkumar TV, *et al*. Regional Cancer Centre, Trivandrum, India: splenic metastasis in germ cell tumor. *Australian Radiology* 1998;**42**:252-3.
- 10 **Sappington SW**. Carcinoma of the spleen: its microscopic frequency: a possible etiologic factor. *JAMA* 1922;**78**:953-5.
- 11 **Fidler IJ**. The implications of angiogenesis for the biology and therapy of cancer metastasis. *Cell* 1994;**79**:189-92.
- 12 **O'Reilly MS**, Holmgren L, Shing Y, *et al*. Angiostatin: a novel angiogenesis inhibitor that mediates the suppression of metastasis by a Lewis lung carcinoma. *Cell* 1994;**79**:185-8.
- 13 **Spencer RP**. Intrasplenic metastasis: radio-colloid studies of growth rate, response to therapy and possible splenic immunity. *Invest Radiol* 1980;**15**:379.
- 14 **Slavin JD**, Mathews J, Spencer RP. Splenectomy for splenic metastasis from carcinoma colon. *Clin Nucl Med* 1986;**11**:491-2.

IMAGES IN MEDICINE.....

Sister Joseph's nodule



The umbilical lesion above was noted in an 82 year old man who presented with weight loss and abdominal pain. The lesion is known as a Sister Joseph's nodule. Sister Joseph, surgical assistant and later nursing superintendent at St Mary's Hospital, Rochester, Minnesota, drew the sign to the attention of Dr W J Mayo who published an article on the sign in 1928, referring to it as "pant's button umbilicus". The lesion had been recognised previously and reported in publications from the mid-19th century. The lesion is usually due to a secondary deposit from gastric carcinoma but lesions from primary colonic, ovarian, pancreatic, and uterine tumours are reported. The sign is usually, but not invariably, associated with a poor prognosis. In this particular case, fine needle aspiration of the lesion revealed metastatic adenocarcinoma and ultrasound of the liver revealed multiple metastases. The patient died and postmortem examination was not performed.

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