Carcinoma of the stomach presenting as a case of the left rectus abdominus muscle metastasis after curative resection

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Recurrence after surgery and chemoradiation in gastric adenocarcinoma is not an unusual phenomenon, but recurrence after intended curative resection and chemoradiation as metastasis to the skeletal muscle is very rare. We came across an unusual case of recurrence from an operated case of gastric adenocarcinoma about 14 months after surgery and chemoradiation. Our case presented as isolated metastasis to the left rectus abdominus muscle from operated case of carcinoma of the stomach 14 months after surgery. This case report of isolated metastasis to the skeletal muscle as recurrence from carcinoma of the stomach is among the very few reported cases of the skeletal muscle metastasis of its kind.

Keywords:
curative resection, metastasis, rectus abdominus, recurrence

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Background

Gastric cancers remain the second leading cause of cancer-related deaths globally [1]. Among these gastric cancers, gastric adenocarcinoma represents 90% cases of gastric cancers. Despite the improvement in surgical resections for gastric adenocarcinoma, the recurrence rate remains high in patients with advanced stage of disease. Although several studies have clarified the prognostic indicators in gastric carcinoma, the timing of recurrence and pattern of postoperative recurrence are still not clear. Common sites of metastasis from gastric carcinoma are the liver, the lungs, the lymph nodes and the peritoneum. Metastasis to any type of skeletal muscle is rare and most of these are detected at autopsy. Metastasis to the skeletal muscles from gastric carcinoma is very uncommon, possibly because of high tissue pressure, accumulation of lactic acid, local changes in pH and oxygenation [2]. Commonly neoplasms metastasizing to the muscle are from the breast and the lungs and most common muscles involved are the psoas and the paravertebral muscles [3].

Case report

A 72-year-old woman was admitted to the Department Of General Surgery, SMHS Hospital, on 5 May 2012 with the chief complaint of recurrent vomiting and weight loss since 1 month. The patient also had decreased appetite since the same duration. On examination, patient was found to be anaemic. Rest of the examination was grossly normal. Complete blood count showed haemoglobin of 8 g/dl. Upper gastrointestinal endoscopy showed ulceroproliferative growth at the antrum with gastric outlet obstruction, and contrast enhanced computerized tomography (CECT) of the abdomen showed circumferential thickening of the pyloric antrum with perigastric nodes. The patient was operated, and distal gastrectomy with D_2 lymphadenectomy with gastrojejunostomy was performed on May 2012. Histopathology showed well-differentiated adenocarcinoma and stage IIB disease. The patient did well during the postoperative period and was totally symptom free on follow-up. The patient received adjuvant chemoradiation after surgery.

The patient again presented to the surgical outpatient department (OPD) with a complaint of abdominal swelling since 1.5 months, ~14 months after the surgery. The swelling gradually increased in size in the last 1.5 months. On examination, the patient was pale and the respiratory system/cardiovascular system/central nervous system was clinically normal. On abdominal examination, there was a visible bulge on the left central abdomen, a swelling about 3 cm ×4 cm arising from the abdominal wall occupying the left umbilical area and extending into the left iliac fossa (Fig. 1), which was nontender, firm-to-hard in consistency, overlying the skin free from swelling. Ultrasonography of the abdominal swelling showed globular mass in the left rectus muscle. Fine needle aspiration cytology (FNAC) of the swelling showed metastatic deposits of moderately differentiated adenocarcinoma. CECT of the abdomen showed nodular thickening with enhancement in the left rectus muscle (metastatic deposits) (Figs. 2 and 3) and anastomotic site was unremarkable. Upper gastrointestinal endoscopy showed patent gastrojejunostomy without any gross remarkable lesion. The patient was operated on 28

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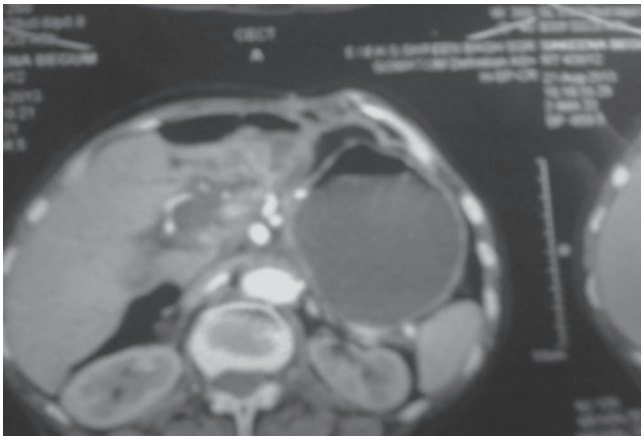
September 2013 and operative findings were: A large well-defined 5 cm × 5 cm mass in the left rectus abdominus muscle. Bowel loops were adherent to the abdominal wall and gentle blunt dissection was performed to free the loops of the gut from the abdominal wall; enlarged rectus abdominus muscle was not involved with adhesions of the bowel. The peritoneal cavity was opened to release the adhesions in order to remove the specimen of rectus abdominus *en bloc*. In addition, thorough inspection of the peritoneal cavity was performed to look for any residual disease or concomitant malignancy. All of the viscera were grossly normal; anastomotic site was grossly normal and liver was free, no ascites. Excision of the left rectus abdominus muscle (Fig. 4) was performed with placement of polypropylene mesh over the abdominal wall defect. Postoperative period was uneventful and patient was discharged on third postoperative day with an advice to visit the surgery OPD and the radiation oncology OPD for follow-up.

Discussion

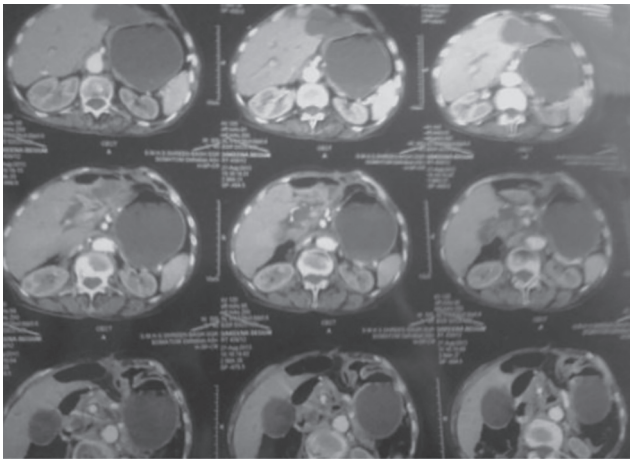
Metastasis to any type of skeletal muscle is rare and most of these cases are detected at autopsy. Most common neoplasms metastasizing to the muscle are from the breast and the lungs, and the most common muscles involved are the psoas and the paravertebral muscle. Low incidence of metastasis to skeletal muscles is related to anatomical characteristics and biochemical environment of the skeletal muscle. Inflammatory oncotaxis has been offered as the most likely explanation for this phenomenon [4] of the skeletal muscle metastasis. The most common sites of metastasis from gastric carcinoma are the liver, the lungs, the lymph nodes and the peritoneum. Metastasis to the skeletal muscles from gastric carcinoma is uncommon and recurrence as skeletal muscle metastasis from operated case of cancer of the stomach is extremely rare. During surgery, if adequate precautions are not taken and

Figure 1



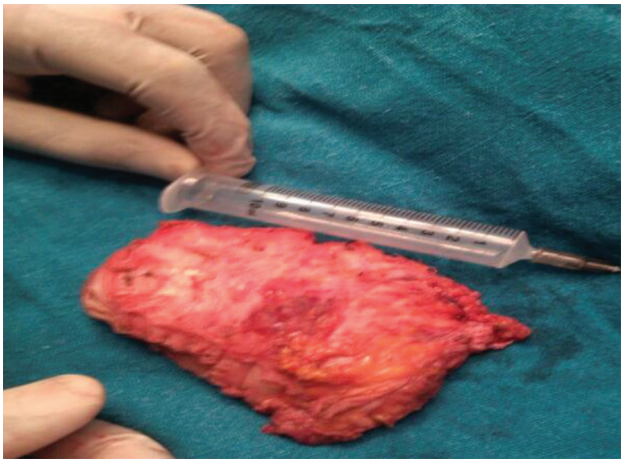
Multiple CECT sections of the same patient.

Figure 2



Specimen of the left rectus abdominus containing metastatic deposits.

Figure 3



Visible swelling on the left side of the abdomen.

Figure 4

CECT of abdomen showing metastasis to the left rectus abdominus.

oncological principles are not followed, implantation of tumour cells to wound can occur leading to metastatic deposits at the wound site. In our patient, while doing curative resection, all required precautions were taken to prevent spillage of tumour cells to wound, but still the possibility of implantation of tumour cells in the wound leading to metastatic deposits to the left rectus abdominus cannot be ruled out. Beşe *et al.* [5] reported a case of unusual skeletal muscle metastasis that occurred during follow-up of a patient after gastrectomy and adjuvant chemoradiation. Pestalozzi *et al*. [6] reported a case of skeletal muscle (calf) metastasis as initial manifestation of adenocarcinoma of the stomach. Amano and Kumazaki [7] reported a case of gastric carcinoma with metastasis to the calf muscles. Del Cimmuto *et al*. [8] reported a rare case of the abdominal wall metastasis from gastric carcinoma. Narváez *et al*. [9] reported an unusual case of the bone and skeletal muscle metastasis from gastric adenocarcinoma.

Our patient presented swelling in the left rectus abdominus muscle after radical surgery and chemoradiation for carcinoma of the stomach, which on investigation was found to be metastatic deposits of moderately differentiated adenocarcinoma of the stomach. Patient was operated upon and excision of the left rectus abdominus muscle was performed with placement of mesh over the abdominal wall defect. This case of operated carcinoma of the stomach presenting as recurrence to the left rectus abdominus is among very rare cases of recurrence of carcinoma of the stomach to the skeletal muscle.

Conclusion

Patterns of recurrence after complete resection of gastric adenocarcinoma are variable because of the difference in tumour biology, primary treatment as well as mode and timing of recurrence detection. There are very few case reports of recurrence of carcinoma of the stomach presenting as skeletal muscle metastasis, and among them recurrence to the rectus abdominus muscle is very rare. Our case of operated carcinoma of the stomach presenting as the left rectus abdominus metastasis is among the very few reported cases of metastasis to the skeletal muscle as recurrence of carcinoma of the stomach and was managed by excision of the left rectus abdominus muscle with placement of polypropylene mesh over the defect.

Acknowledgements

Conflicts of interest
None declared.

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