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Case Report

An unusual presentation of metastatic lung cancer

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ABSTRACT

Lung cancer is one of the leading causes of cancer related deaths and at presentation over 50% of patients already have metastatic disease. Intestinal metastasis is not a very common occurrence and symptomatic intestinal metastasis is even rarer. We present a case where patient was simultaneously diagnosed to have lung cancer and extensive brain and symptomatic intestinal metastasis where resection of the intestinal lesion is the best option of treatment for the metastasis.

Keywords: Small cell carcinoma lung, Intestinal metastasis of lung cancer, Perforation peritonitis

INTRODUCTION

Over 50% of patients being diagnosed to have lung cancer already have metastatic disease.[1] Brain, liver, adrenal glands, bones and lymph nodes are the most common sites of metastasis.[2] Even though 2-11% of autopsy cases of patients with lung cancer are found to have small intestinal metastasis, clinical manifestations of small intestinal metastasis is even more rare.[3-5] It was not until 1961 that Morgan et al. reported the first case of small bowel perforation due to metastatic lung carcinoma.[6]

When symptomatic small intestinal metastasis exists, they usually present with partial or complete intestinal obstruction and infrequently perforation, malabsorption or hemorrhage.[7] The prognosis of patients with symptomatic small intestinal metastasis is poor with survival not more than four months.[4] We present a case of lung cancer with concurrently detected brain metastasis and small intestinal metastasis presenting as perforation peritonitis without postoperative mortality.

CASE REPORT

A 60 year old man who was a chronic smoker for the past 30 years, presented with generalised weakness and easy fatigability for three months and intermittent fever with a productive cough for the past two months. He also had a history of weight loss and knee joint pain. Patient had been diagnosed to have chronic obstructive pulmonary disease about a year ago and had been on steroids for the same for the past three months. Patient also had symptoms of proximal muscle asthenia. He had a chest x ray which was done before he came to the hospital by a general practitioner which was suggestive of a left lower zone collapse. On examination the patient had pallor, oral candidiasis, decreased breath sounds on the left side in the inter-scapular and infra axillary area with crepitation and decreased vocal resonance. His higher mental functions were normal but he had motor weakness with a power of 4/5 in all four limbs. The patient was admitted with a probable diagnosis of pulmonary tuberculosis, Chronic obstructive pulmonary disease with steroid induced myopathy.

In the hospital, patient underwent a bronchoscopy which revealed a left main bronchus mass with collapse and a

biopsy was taken. While the biopsy report was awaited the patient had an episode of jerky movements of the left upper limb and stiffening of the left lower limb with deviation of the angle of the mouth for about two to three minutes which was suggestive of a seizure. The patient was then shifted to the intensive care unit for monitoring. The biopsy report was suggestive of small cell carcinoma of the lung which was confirmed by immunohistochemistry. The neoplastic cells were positive were synaptophysin, chromogranin, CD56, CK7, TTF and negative for CK5/6, Ki67. The patient had an MRI of the brain done which showed multiple bilateral cerebral and cerebellar lesions suggestive of metastases.

Figure 1: Bronchoscopy images showing mass in the left main bronchus totally occluding the lumen.

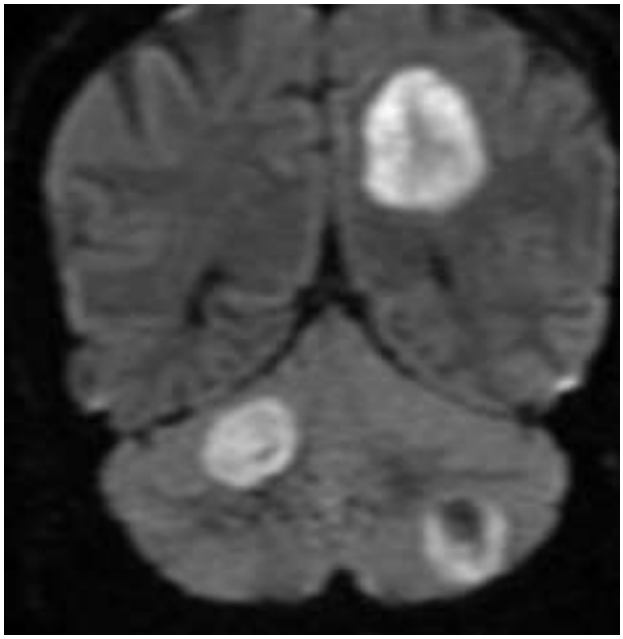

Figure 2: Coronal section MRI brain showing multiple metastasis on diffusion weighted imaging.

The patient was planned for palliative radiotherapy, 30 Gray in 10 cycles over two weeks to the whole brain. After just 8 cycles, the patient complained of abdominal pain and distension with constipation and then obstipation. A surgical reference was given and the patient was diagnosed to have hollow viscus perforation with peritonitis and was taken up for an emergency laparotomy.

Figure 3: Chest x-ray showing consolidation collapse of the left lower zone and pneumoperitoneum.

Figure 4: X-ray erect abdomen showing pneumoperitoneum and multiple air fluid levels suggestive of small bowel obstruction.

On laparotomy, there was gross fecal contamination of the peritoneal cavity with dilated stomach and small bowel. There was a one centimetre perforation over a 4x3 cm mass in the ileum about 1 meter from the ileocecal junction. There were no other obvious lesions in rest of the bowel, liver or any evidence of macroscopic peritoneal metastasis. The patient underwent a resection of a segment of the small bowel involving the mass and perforation with the two ends of bowel being brought out as an ileostomy and a mucus fistula respectively.

The biopsy of the lesion was consistent with metastatic carcinoma (morphology consistent with small cell carcinoma lung).

The post-operative period was uneventful, with the patient being gradually started on oral feeds and eventually discharged. Patient was seen in the out-patient department for up to one month post-surgery after which he was lost to follow up.

Figure 5: Single metastatic lesion present on the ileum.

Figure 6: Perforation site in the metastatic lesion on the ileum with fecal contamination.

DISCUSSION

Cancer of the lung is one of the most frequent causes of cancer deaths in the western world and the leading cause of male cancer deaths in India. At the time of diagnosis of lung cancer approximately 50% of patients have distant metastasis and are in-operable.[8] In lung cancer the most common sites of extra pulmonary metastases are lymph nodes, liver, adrenal gland, bone and brain.[1,5,9,10] Metastatic tumours may be the presenting symptom of the disease and symptoms are related to the site and size of the secondary tumour.[4]

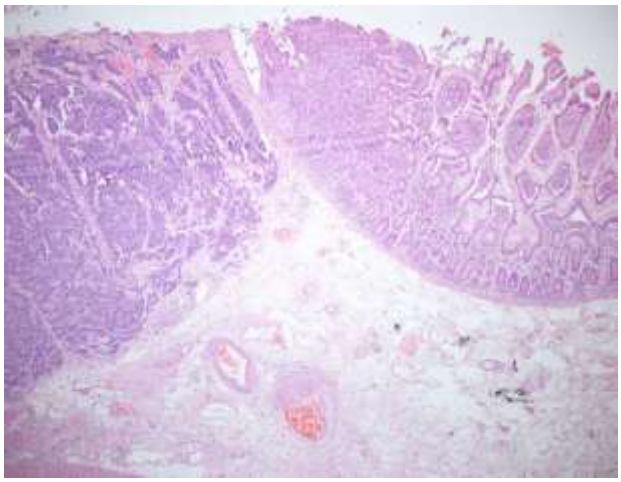

Figure 7: Photomicrograph showing wall of small intestine with ulcer infiltrating neoplasm. The adjacent wall is unremarkable (H and E, 4x magnification).

When metastasis to small intestine is seen, the most common sites of the primary cancer is an intra-abdominal malignancy which is either from the gastrointestinal tract or gynaecological and if from an extra-abdominal site, most commonly from melanoma.[4,11,12]

Small intestinal metastases from lung cancer are common during post mortem examinations.[3,4] Clinical manifestations before death however, are still a rare occurrence.[4,5]According to Berger et al, only 0.5% of patients with lung cancer had clinically apparent small bowel metastasis and McNeill et al reported an even lower incidence of the same.[4,5]

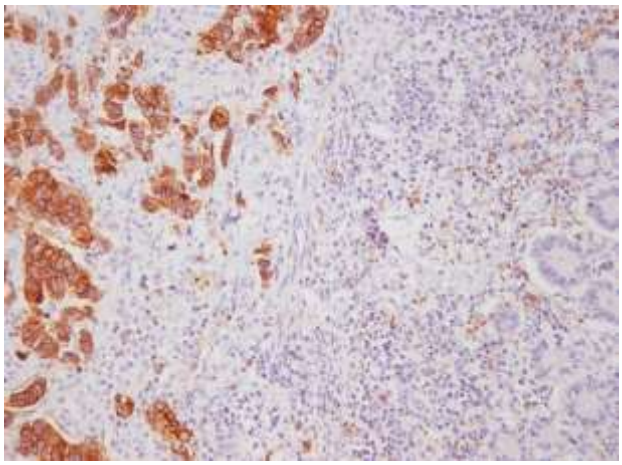

Figure 8: Immunohistochemistry on small intestinal tumour showing positivity for CD56 (20x magnification).

Even though all cell types of primary lung cancer may have metastasis to small bowel, Antler et al reported that gastrointestinal metastases were more common in cases where large cell and small cell histology was seen in the primary tumour.[4,5,13]

While presentation of the small intestinal metastases may be as perforation, obstruction, malabsorption and/or haemorrhage, Leidich and Rudolph have explained the pathogenesis in that the tumour cells from the primary, spread to the bowel wall either by haematogenous or lymphatic spread.[7] The tumour replaces all or part of the bowel wall resulting in various symptoms: viable bulky tumour causes obstruction, necrotic tumour perforates, ulcerative lesions bleed and extensive mucosal surface involvement leads to malabsorption.

Even though DeCastro et al stated that in the 51 cases of small bowel metastasis they reviewed, intestinal obstruction was the most common occurrence, McNeill et al clarified that when the primary cancer is from the lung, metastases to the small bowel is more likely to perforate as there is greater tendency to undergo necrosis before the metastases is large enough to cause obstruction.[4,14]

In our case the patient developed signs of both obstruction and perforation and these were explained by the large tumour with perforation seen on laparotomy.

Small bowel metastasis tend to occur typically in the end-stage of a widely spread disease and hence prognosis of such patients is considered to be poor.[4] The metastatic disease also tends to be multiple.[15] Whereas Leidich et al reported mortality of all patients within a sixteen week period following surgery, Berger et al had one patient who survived for over 22 months, all the others succumbing to their disease within 8 months of surgery.[5,7] Our patient was lost to follow-up after one month.

CONCLUSION

Even though lung cancer has a high tendency to early and widespread metastasis, symptomatic bowel metastasis is rare. The commonest presentation of small bowel metastasis is intestinal obstruction while if the metastasis is secondary to lung cancer it is more likely to perforate. Literature does not indicate any predilection as to the particular cell type (histology) of the primary lung lesion.

The treatment for perforation peritonitis is as per standard protocol of resuscitation with fluids and exploratory laparotomy.

Even though symptomatic small bowel metastasis can occur early in lung cancer, resection is the best palliative option.

When a patient with diagnosed lung cancer presents with perforation peritonitis or intestinal obstruction, the possibility of the cause being a metastatic intestinal lesion should always be kept in mind.

Palliative radiotherapy and chemotherapy may be given post operatively but the prognosis is extremely poor.

In our case the patient was admitted and while awaiting the histological diagnosis of the lung lesion manifested with symptomatic metastatic disease both in the brain and subsequently small bowel. Hence we suggest that patients being diagnosed with lung cancer should be actively screened for metastatic disease and be dealt with accordingly.

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