CASE REPORT

Acute large bowel obstruction secondary to stage 4 colonic carcinoma in an elderly man with severe aortic stenosis: a therapeutic challenge

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SUMMARY

Colonic adenocarcinoma is a common gastrointestinal malignancy affecting the elderly, and has a multifactorial aetiology. Depending on the individual circumstances, surgical resection is the treatment of choice for colon cancer even for oligometastasis. Metastatic evidence as well as presence of comorbidities, particularly in the elderly, make surgical management difficult and often present a clinical challenge for clinicians. This is a case report exploring the treatment options for an 80-year-old male patient presenting with acute large bowel obstruction secondary to colonic adenocarcinoma with disseminated metastases and severe aortic stenosis.

A per rectal examination was also unremarkable. Bowel sounds were sluggish.

A clinical diagnosis of large bowel obstruction was made, and a CT scan of the abdomen with contrast was performed, which revealed a stage 4 colonic malignancy with lung and liver metastasis.

In view of the advanced nature of the disease and large bowel obstruction, treatment with a palliative intent was considered. The patient was explained the need for a diversion procedure, but he was not willing for an ostomy. Colonoscopic stenting by the gastroenterologist was also considered but was not successful and hence a decision to perform a palliative resection was taken to relieve the obstruction.

BACKGROUND

Metastatic adenocarcinoma is a common finding in the elderly and is on the rise in the Indian subcontinent. Cases are often complicated due to the presence of other significant comorbidities and, therefore, possibilities of a cure are limited. Nevertheless, resections may be performed where their benefits outweigh the intraoperative and post-operative mortality and morbidity. The role of adjuvant and neoadjuvant chemotherapy is still being extensively evaluated and large scale studies need to be conducted to assess which regimen might help improve prognosis. Management in such cases has to be individualised and a thorough discussion with the patient and their family is a prerequisite, where they must be made aware of all the complications and overall prognosis.

CASE PRESENTATION

An 80-year-old man presented to the hospital with a 2-week history of intermittent pain in his right iliac fossa, as well as bloating of the abdomen. There was associated vomiting as well, which was feculent. He also had a history of constipation for 2 days and reported a loss of appetite over the past 1 month.

His medical history included hypertension, chronic obstructive pulmonary disease and critical aortic stenosis, for which he has been on medication for a number of years. The patient did not report any history of anaemia or episodes of diarrhoea or rectal bleeding. There was no family history of colonic malignancies, thereby ruling out hereditary colorectal cancer syndromes. General examination was unremarkable. The abdomen was distended with evidence of hepatomegaly (+3 cm).

INVESTIGATIONS

Haemoglobin was 10.9 g/dL, total leucocyte count $7.5 \times 10^3/\mu\text{L}$, platelets $361.0 \times 10^3/\mu\text{L}$; bilirubin direct 0.3 mg/dL, total bilirubin 0.6 mg/dL, alanine aminotransferase 44 IU/L, aspartate aminotransferase 55 IU/L, alkaline phosphatase 580 IU/L, serum albumin 3.90 g/dL; carcinoembryonic antigen 617.7 ng/mL; serum urea 21 mg/dL, serum creatinine 0.9 mg/dL and serum sodium 133 mmol/L.

Pulmonary function test showed forced expiratory volume 1 (FEV1)/forced vital capacity (FVC) ratio to be 18.2.

CT of the abdomen showed short segment irregular circumferential enhancing wall thickening in the proximal descending colon with pericolic fat stranding with luminal obstruction. Both the transverse and ascending colon were dilated. Multiple liver metastases with one of the metastases infiltrating the right branch of the portal vein and the right hepatic duct with intrahepatic biliary dilation (IHBRD) of the right lobe was observed. Lung metastasis in the anterior basal segment of the right lower lobe was also observed. There was a bilateral mild pleural effusion. There was also a large cyst on the right kidney. Minimal free fluid was present (figure 1).

A lower gastrointestinal endoscopy was subsequently performed which confirmed the presence of the splenic flexure lesion, and the scope could not be passed beyond this lesion; a biopsy was performed, which reported an adenocarcinoma (figure 2).

A cardiology review was sought given the patient's cardiac comorbidities. Echocardiogram revealed an ejection systolic murmur, with loudest sound in the aortic area, along with degenerative aortic valve suggestive of severe calcific aortic stenosis. There was also mild aortic regurgitation with

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Figure 1 CT of the abdomen showing short segment growth in the descending colon (red arrow) and multiple metastases in the liver (yellow arrows).

concentric left ventricular hypertrophy and a normal left ventricular systolic function. Left ventricular ejection fraction was 35% and aortic valve diameter was 0.8 cm².

K-ras mutation and micro-stability index (MSI) were not performed.

TREATMENT

Resection and anastomosis of the descending colon with a palliative intent was performed. Biopsy of the specimen revealed a growth involving the muscularis propria and serosa with colonic wall thickening. Mesenteric dissection showed none of the 11 isolated lymph nodes to have tumour deposits. The final diagnosis was Stage 4 (American Joint Cancer Committee AJCC T3N0M1b) well differentiated adenocarcinoma colon.

OUTCOME AND FOLLOW-UP

The patient tolerated the surgery well. In the postoperative period, the patient had prolonged paralytic ileus. Electrolyte imbalance was corrected. The patient recovered and was discharged 2 weeks after surgery.

DISCUSSION

Adenocarcinoma of the colon is the most common gastrointestinal tumour in the world with a multifactorial aetiology.¹ Incidence is higher in women and in the elderly, with a peak age of 65 years.¹ In India, colorectal cancer is relatively rare compared with western nations, but is on the rise. Southern India has a higher incidence than the rest of the country with an occurrence rate of 4.4 per 100 000.² Majority of cancerous

Figure 2 Colonoscopy revealed a stenosing growth in the descending colon.

lesions in the gastrointestinal tract are adenocarcinomas, and these are most commonly seen in the rectum, recto-sigmoid or sigmoid colon. Eighty per cent of these lesions arise from adenomatous polyps, which progress to carcinomas over the years.³ Risk factors include genetic predispositions, environmental triggers (diet) and inflammatory conditions (ulcerative colitis and Crohn's disease).⁴ Of these, genetic factors, such as hereditary non-polyposis colon cancer syndrome (HNPCC/Lynch syndrome) and familial adenomatous polyposis (FAP), account for about 10–15% of causes.⁴ Surgery is the only curative option, provided the tumour is less than stage 3 according to the AJCC classification; however, this is a difficult option for our patient who had large bowel obstruction and multiple comorbidities, with the most significant of these being severe aortic stenosis. Exploring various treatment modalities with this in mind, therefore, is down to sound a thorough consideration of the pros and cons as well as good clinical judgement.

The complete diagnosis in this case is acute large bowel obstruction secondary to adenocarcinoma of the descending colon with multiple organ metastases to lungs and liver, thus implying stage 4 colonic cancer as per AJCC sixth edition staging. Treatment options in such cases include treatment for the primary tumour in the descending colon and the metastatic lesions. These treatment regimens would have to be modified slightly, taking into account that the patient in our case is known to have aortic stenosis, which can raise mortality. Systemic chemotherapy $\pm$ biologicals is the usual modality of choice in the adjuvant and metastatic scenarios (raised 5 year survival from 12 months several years ago to 22 months currently).⁵

Surgical resection remains the only curative option in colonic adenocarcinoma. A palliative left haemicolectomy would have been ideal for our patient provided the tumour was classified between stages 1 and 3. Limited resection and anastomosis is the other option which would have been applicable had the tumour been confined to just the descending colon, complications of the anastomosis notwithstanding. Although both these options would manage the bowel obstruction in our patient, the surgical and anaesthetic burden of the procedures may be lengthy for this elderly patient with significant cardiac pathology. Apart from the significant mortality rate associated with such a procedure (20% in a young patient under no other conditions,⁶ much higher for our patient), the benefit obtained may

be masked due to extensive metastases. Di Benedetto *et al*⁷ suggest that resecting colorectal metastases in patients over 70 years is associated with a low mortality and morbidity and may have long-term survival advantages; however, considering the significant aortic stenosis in our patient, along with metastases in the lungs and the renal cyst, this option would be futile. Palliative chemotherapy will not address the colonic obstruction due to the lesion, hence it may be appropriate in already identified/chronic cases. Stenting may be another management option, although stents avoid the need for major surgeries and can buy time for planning. Watt *et al*⁸ found perforation, migration and tumour overgrowth to be some of the associated complications. Stent insertion would relieve the obstruction and is usually considered ideal for patients such as ours who present with significant other comorbidities, as stents reduce postoperative hospital stay and result in lower incidences of stoma creation.⁹ However, as the colonoscope could not be negotiated beyond the lesion, this would be difficult to establish. Moreover, a study by van Hooft *et al*¹⁰ shows that stenting does not provide any clinical benefit compared with emergency surgery. The presence of metastases also adds further credibility for the choice of a palliative resection in this case. Literature suggests that lung metastases are usually seen in 10% to 20% of patients with colonic cancer and a subsequent prognosis ranging from 25% to 65% in these patients if they undergo a resection.¹¹ A worse prognosis is associated with multiple pulmonary metastatic lesions. Studies are unclear about the effect of neoadjuvant or adjuvant chemotherapy and the relapse rate is quite high after a pulmonary metastasectomy. Long-term prognosis is reasonably good in a few patients who undergo pulmonary and hepatic metastases, and may be considered in young patients with no other systemic conditions. If K-ras wild-type mutation is positive, this may open additional treatment options such as cetuximab and panitumumab. The overall five year survival is shown to be 30–50%.¹² This is, however, not suitable for our patient. All these factors pointed towards a management of a colostomy for our patient followed by adjuvant chemotherapy for downsizing the lesion and symptomatic control.

With increasing longevity, incidence of cancer with multiple comorbidities is bound to rise. The decision to treat with curative intent will depend on patient's cancer type, performance status, available treatment expertise in the particular context and patient's own preference. This case highlights that common conundrum.

Learning points

- ▶ Adenocarcinoma of the colon is higher in women and in the elderly, with a peak age of 65 years.
- ▶ Surgery is the only curative option, provided the tumour is less than stage 3 according to the AJCC (American Joint Cancer Committee) classification.
- ▶ Treatment modalities in advanced stage 4 colon cancer obstruction are limited resection of the colon and anastomosis, palliative left haemicolectomy/chemotherapy, colostomy/ileostomy and stent insertion for relief from obstruction.

Competing interests None.

Patient consent Obtained.

Provenance and peer review Not commissioned; externally peer reviewed.

REFERENCES

- 1 Lasser KE, Murillo J, Lisboa S, *et al.* Colorectal cancer screening among ethnically diverse, low-income patients: a randomized controlled trial. *Arch Intern Med* 2011;171:906–12.
- 2 Pathy S, Lambert R, Sauvaget C, *et al.* The incidence and survival rates of colorectal cancer in India remain low compared with rising rates in East Asia. *Dis Colon Rectum* 2012;55:900–6.
- 3 Okamoto M, Shiratori Y, Yamaji Y, *et al.* Relationship between age and site of colorectal cancer based on colonoscopy findings. *Gastrointest Endosc* 2002;55:548–51.
- 4 Thorson AG, Knezetic JA, Lynch HT. A century of progress in hereditary nonpolyposis colorectal cancer (Lynch syndrome). *Dis Colon Rectum* 1999;42:1–9.
- 5 Tournigand C, Andre T, Achille E, *et al.* FOLFIRI followed by FOLFOX6 or the reverse sequence in advanced colorectal cancer: a randomized GERCOR study. *J Clin Oncol* 2004;22:229–37.
- 6 Tekkis PP, Poloniecki JD, Thompson MR, *et al.* Operative mortality in colorectal cancer: prospective national study. *BMJ* 2003;327:1196–201.
- 7 Di Benedetto F, Berretta M, D'Amico G, *et al.* Liver resection for colorectal metastases in older adults: a paired matched analysis. *J Am Geriatr Soc* 2011;59:2282–90.
- 8 Watt AM, Faragher IG, Griffin TT, *et al.* Self-expanding metallic stents for relieving malignant colorectal obstruction: a systematic review. *Ann Surg* 2007;246:24–30.
- 9 Karoui M, Charachon A, Delbaldo C, *et al.* Stents for palliation of obstructive metastatic colon cancer: impact on management and chemotherapy administration. *Arch Surg* 2007;142:619–23.
- 10 van Hooft JE, Bemelman WA, Oldenburg B, *et al.* Colonic stenting versus emergency surgery for acute left-sided malignant colonic obstruction: a multicentre randomised trial. *Lancet Oncol* 2011;12:344–52.
- 11 Ashley AC, Deschamps C, Alberts SR. Impact of prognostic factors on clinical outcome after resection of colorectal pulmonary metastases. *Clin Colorectal Cancer* 2006;6:32–7.
- 12 Labianca R, Beretta GD, Kildani B, *et al.* Colon cancer. *Crit Rev Oncol Hematol* 2010;74:106–33.

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