

Primary Adenocarcinoma of Ileum presenting as Perforation: A Review of Literature.

Ashwani Kumar, Madhusudan Patodia, V. K. Sharda, P. K. Pandove, M.S. Bal*

Department of Surgery, Rajindra Hospital, Patiala, Punjab

*Department of Pathology, Government Medical College, Patiala, Punjab, India

Abstract: Adenocarcinoma of the small intestine is a rare malignancy. Symptoms of small bowel adenocarcinoma are nonspecific and frequently do not occur until advanced disease is present. The most commonly reported symptoms are abdominal pain, nausea/vomiting, weight loss, and gastrointestinal bleeding. They may also present with hemorrhage, obstructive symptoms or perforation. The low incidence and lack of pathognomonic symptoms are the reasons that the early diagnosis of malignant small bowel tumor is uncommon. Incidence, clinical presentations, diagnosis and treatment of adenocarcinoma of the ileum are discussed through a review of literature and report of two cases treated in our institution. Adenocarcinoma of the ileum is a rare disease which has variable presentations and thus poses a challenge to our diagnostic skills. Surgical resection has been found to be the treatment of choice. Chemotherapy and radiotherapy do not have an established role yet.

INTRODUCTION

Primary adenocarcinomas of the small intestine are rare. Although the small bowel comprises three quarters of the length of the gastrointestinal tract, malignant tumors of the small bowel comprise less than 1% of all gastrointestinal malignancies¹. The different pathologic types of small bowel malignant tumors include adenocarcinoma, carcinoid tumors, leiomyosarcoma, and lymphoma. Adenocarcinoma is the most commonly encountered small bowel malignant tumor². The clinical presentation of small bowel tumors may be insidious and overlooked by the unsuspecting clinician. These patients often present with vague complaints of abdominal pain, weight loss, and anorexia. Many authors have cited the low incidence and lack of pathognomonic symptoms as the factors because of which early diagnosis of small bowel tumors is uncommon, intervention is usually emergent³. We report two cases of adenocarcinoma of the ileum, who presented in the emergency with perforation peritonitis.

CASE REPORT

Case 1: A 65 year old farmer presented to the emergency with chief complaints of pain abdomen, obstipation and abdominal distention for 3 days. After conducting the necessary blood and urine examinations, an erect chest x-ray was performed. This revealed free air under the domes of the diaphragm. An urgent laparotomy was performed. The intra-operative findings were as follows:

- A growth was present in the terminal ileum, 10 cm proximal to the ileo-caecal junction, measuring 12 cm x 6 cm
- A single perforation, measuring 2 cm x 2 cm was present on the anti-mesenteric border, within the growth
- Multiple hard nodules were present in the mesentery of the terminal ileum.

Case 2: A 70 year old shopkeeper presented to the emergency with chief complaints of pain abdomen and abdominal distention for 1 day. Routine blood and urine examinations were performed, and an erect chest x-ray revealed free air under the domes of the diaphragm. An urgent laparotomy was performed. The intra-operative findings were as follows:

- A growth measuring 9 cm x 4 cm was present in the ileum, 15 cm from the ileo-caecal junction
- A single perforation, measuring 2 cm x 2 cm was present on the anti-mesenteric border, within the growth
- Single nodule, measuring 2 cm x 2 cm was present in the mesentery of the ileum (Figure 1 & Figure 2)

In both cases, a bowel resection with an end-to-end anastomosis was performed. The resected bowel, along with the lymph nodes, was sent for histopathological examination. It revealed moderately differentiated adenocarcinoma with secondary carcinomatous deposits in the lymph nodes.

Both patients had an uneventful post-operative stay in the hospital. They

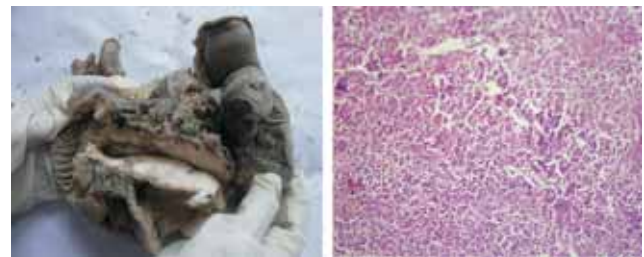


Figure 1: Gross specimen of small intestine of patient 2

Figure 2: Microscopic picture of small intestine of patient 2

were discharged in satisfactory condition, and have been on regular follow-up since.

DISCUSSION

Adenocarcinoma is the most frequent primary small bowel tumour, accounting for 40% of these neoplasms⁴. More than half of small bowel adenocarcinomas arise in the duodenum, even though this organ comprises only 4% of the entire length of the small bowel. Most arise in the region of the ampulla of Vater. A smaller percentage of tumours arise in the jejunum, particularly in the first 30cm distal to the ligament of Treitz. Ileal carcinomas are the least common, except in patients with Crohn's disease⁴.

On barium studies, advanced small bowel adenocarcinomas appear as "apple core" lesions similar to those found elsewhere in the gastrointestinal (GI) tract. These annular lesions are short, circumferentially narrowed segments with mucosal ulceration and overhanging proximal and distal borders. These malignant strictures are usually rigid, with a fixed, unchanging appearance during compression.

On computed tomography (CT), small bowel adenocarcinomas may manifest as a discrete tumour mass, annular narrowing with abrupt concentric or irregular "overhanging edges", or as an ulcerative lesion. Duodenal adenocarcinomas tend to be papillary or polypoid, while more distal lesions tend to be annular.

Usually only a short segment of the bowel is involved and gradual narrowing of the lumen leads to partial or complete small bowel obstruction. The mass itself usually shows moderate enhancement after the intravenous administration of contrast material

The primary treatment of small bowel malignant tumors is surgical, which consists of segmental resection including wide excision of the lymph node bearing mesentery. Ileal lesions may require a right hemicolectomy. As much ileum as possible should be preserved at the time of resection to limit the loss of vitamin B 12 and secondary malabsorption. In the study conducted by Lioe and Biggart⁵, all 25 patients with primary adenocarcinoma ileum underwent surgical resection, which seemed to be the only effective treatment.

Correspondence: Dr. Ashwani Kumar, Associate Professor, C2, Medical college campus, Near Senior Boys Hostel, Government Medical College, Patiala-147001, Punjab, India
e-mail: ashwanicmc@hotmail.com

Chemotherapy and radiation therapy are reserved for palliation of metastatic disease. Given the low prevalence of this disease, few clinical trials of chemotherapy have been conducted and despite a variety of chemotherapeutic agents used to treat adenocarcinoma of the small bowel, no standard chemotherapy regimen exists for this disease. At present, there is no conclusive evidence showing a benefit from the use of adjuvant chemotherapy following curative resection in patients with small bowel adenocarcinoma. In one of the largest retrospective reviews conducted, the M. D. Anderson Cancer Center (Texas, USA) reviewed 217 patients with small bowel adenocarcinoma and showed that the use of adjuvant chemotherapy administered to 59 patients had no survival benefit⁶.

CONCLUSION

Small bowel tumors are uncommon. They are difficult to diagnose because of the nonspecific symptoms. They also have a poor prognosis because most patients present with advanced disease. The diagnosis of malignant small bowel tumors should be considered in all patients who present with a history of abdominal complaints, unexplained weight loss, occult blood

in the stool, and anemia. Some patients may require emergency surgery for obstruction, hemorrhage, or perforation. Primary malignant small bowel tumors may present as atypical, but highly lethal, abdominal emergencies. A complete tumor resection has to be the aim of any curative surgical approach. Early surgical intervention with a high index of suspicion is required to improve survival. The role of adjuvant and neo-adjuvant chemotherapy and radiotherapy is questionable.

REFERENCES

1. Braasch JW, Denbo HE: Tumors of the small intestine. *Surg Clin North Am* 1964, 44:79-96.
2. Brophy C, Cahow CE: Primary small bowel malignant tumors unrecognized until emergent laparotomy. *Am Surg* 1989, 29:408-412.
3. Maglente DD, O'Connor K, Bessett J et al: The role of the physician in the late diagnosis of primary malignant tumors of the small intestine. *Am J Gastroenterol* 1991, 86:304-308.
4. Verma D, Stroehlein JR: Adenocarcinoma of the small bowel: a 60-yr perspective derived from M. D. Anderson Cancer Center tumor registry. *Am J Gastroenterol* 2006, 101:1647-54.
5. Lioe TF, Biggart JD: Primary adenocarcinoma of the jejunum and ileum: clinicopathological review of 25 cases. *J Clin Pathol* 1990, 43:533-536.
6. Dabaja BS, Suki D, Pro B et al: Adenocarcinoma of the small bowel: presentation, prognostic factors, and outcome of 217 patients. *Cancer* 2004, vol. 101, no. 3, 518-526.

Anomalous third head of Biceps brachii and Pronator teres in single Cadaver.

Renu Gupta, S. B. Ray

Department of Anatomy, All India Institute of Medical Sciences, New Delhi, India.

Abstract: Although variations in those muscles are not rare but these variations, especially accessory muscles may simulate soft tissue tumors and can result in nerve compressions. The forearm and hand region of an adult female cadaver was closely observed during gross anatomy teaching program. Anomalous head of flexor muscles were observed while dissecting the arm and forearm region of an adult. In right arm an additional head of biceps muscle originated from humerus and got inserted to the bicipital tendon having its own nerve supply from musculocutaneous nerve. In the left arm a third head of pronator teres muscle originated from medial intermuscular septum and overlapped the median nerve and brachial artery.

Conclusion: The present case reports anomalous heads of pronator teres and biceps brachii muscle may cause clinical implications and should be considered in patients, with high median nerve paralysis with lower brachial artery compression.

INTRODUCTION

Variations in the muscles of the flexor compartment of arm and forearm are usual and can result in multiple clinical conditions limiting the functions of forearm and hand. These variations, especially accessory muscles may simulate soft tissue tumors and can result in nerve compressions. The **biceps brachii** is, as the name implies, a two-headed muscle located on the upper arm. Both heads arise from the scapula and join to form a single muscle belly which is attached to the upper forearm. The pronator teres also has two heads—humeral and ulnar. The humeral head, the larger and more superficial, arises from the medial supracondylar ridge of the humerus, and from the common flexor origin. The ulnar head is a thin fasciculus, which arises from the medial side of the coronoid process of the ulna, and joins the preceding at an acute angle and gets inserted on the middle of forearm. Additional heads of biceps brachii muscle and pronator teres muscle have been described in earlier studies^{1, 2}. The combination of anomalous head of biceps brachii and pronator teres muscle in one cadaver has not previously been described in the literature.

CASE REPORT

During routine cadaveric dissection of the flexor compartment of the arms, multiple supernumerary muscles were observed in an adult female cadaver at All India Institute of Medical Sciences Anatomy Dissection Laboratory. Right and left arm dissections were carried out according to the instructions by Cunningham's Manual of Practical Anatomy.

In right arm, a supernumerary head of biceps brachii originated from the humerus

at the point where the coracobrachialis muscle was inserted and joined the biceps brachii tendon and its bicipital aponeurosis at the inferior third of the arm. The branches to this right aberrant head of biceps muscle arose as a common nerve trunk from the musculocutaneous nerve, and entered in muscle from the ventral aspect (Fig 1). Biceps brachii of other hand was normal.

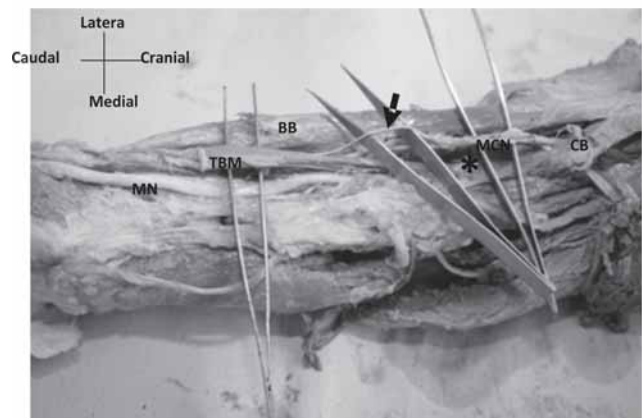


Figure 1: Photograph of the anterior compartment of the right arm shows the third head of biceps brachii with its own nerve supply from the main trunk of musculocutaneous nerve. BB: biceps brachii; THB: third head of biceps brachii; MCN: musculocutaneous nerve, Arrow indicating nerve supply of that additional head by main trunk of musculocutaneous, CB: coracobrachialis muscle being pierced by musculocutaneous nerve, * indicate origin of third head of biceps brachii.

In the left arm, a third head of pronator teres muscle was observed. This head was altogether separate from usual superficial origin, so as to constitute a distinct and separate belly. It was joined to deep head of pronator teres near its insertion. Its

Correspondence: Dr Renu Gupta, Senior Resident, All India Institute of Medical Sciences, New Delhi, India Fax: +91-11-26588663, 26588641 e-mail: drrenu.gupta79@gmail.com