

Advanced Burkitt's Lymphoma Presenting With Jejunal Perforation

Dear Editor,

Burkitt's lymphoma (BL) is a high grade B-cell neoplasm under the umbrella of non-Hodgkin's lymphomas. It is predominantly seen in children but may also present in adults. There exist 3 major clinical types: the endemic (African) form which is a common childhood malignancy strongly associated with the Epstein-Barr virus (EBV) in central Africa, the non-endemic (Sporadic) form which is rare (100 cases in the United States every year, less than 20% of cases associated with EBV) and the immunodeficiency-related BL, most often seen in AIDS patients. The endemic form of BL is predominantly a disease of the mandible and maxilla, whereas the sporadic typically presents as extranodal disease.¹ BL is a rapidly progressive disease primarily treated with intensive chemotherapy and thus the presence of sepsis or any other condition, that necessitates the delay of chemotherapy treatment, will worsen the prognosis significantly. Thus, it is of importance to diagnose the disease before complications occur and initiate treatment immediately. We present a case of a patient with advanced BL of the jejunum complicated by sepsis due to bowel perforation.

Case Report

A 72-year-old Chinese male with a background history of ischaemic heart disease presented with epigastric pain, diarrhoea, vomiting and progressive abdominal distension over 3 days. This was accompanied by shortness of breath and fever. On examination, he was found to have a distended, rigid abdomen with generalised tenderness but with active bowel sounds. Blood tests showed increased creatinine (136 $\mu\text{mol/L}$), urea (11.8 mmol/L) and a decreased lymphocyte count ($0.6 \times 10^9/\text{L}$, total white blood count was normal). A computed tomography (CT) scan of the abdomen and pelvis showed small and large bowel distension in the right side of the abdomen and adjacent free peritoneal fluid and a thickened segment of jejunum (Fig. 1), consistent with inflammatory changes suspected to be due to a perforated viscus.

The patient underwent an emergency laparotomy. A 2.5 cm antemesenteric mid-jejunal perforation with a 7 cm surrounding indurated ulcer was found (Fig. 2). There were no palpable lymph nodes and the rest of the bowel revealed no gross abnormality. A wide resection of the perforated ulcer and a primary anastomosis was performed with 5 cm margins. Cut sections of the perforated area showed a 5 cm length of firm, whitish, "fish flesh" appearance of the bowel wall. Microscopic examination showed a diffuse

infiltrate of medium lymphoid cells with large nucleoli and frequent mitotic figures. A starry sky appearance was also noted. The tumour was found to have involved the entire wall of the bowel and was associated with an area of transmural necrosis corresponding to the perforation seen grossly. Unfortunately, both resection margins showed tumour. The tumour stained positive for pan B cell marker CD20 and CD10. Stain for bcl-2 was negative. The Ki-67 proliferation index was 100%. Thus, a high-grade B-cell lymphoma consistent with BL was diagnosed.

Despite initial clinical improvement the postoperative period was complicated by abdominal distension and the patient developed a wound dehiscence requiring surgical repair. Subsequently, he developed nosocomial pneumonia with the abdomen becoming increasingly distended.

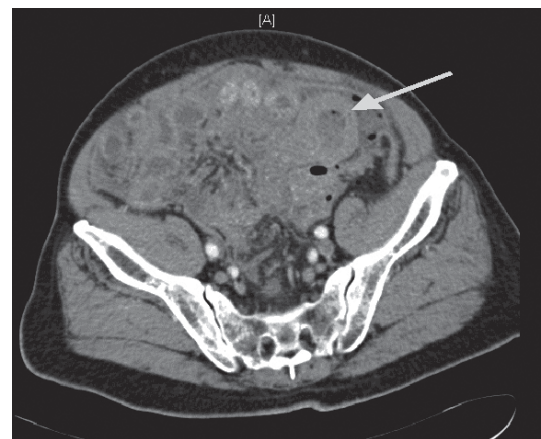


Fig. 1. Arrow shows thickened jejunum.



Fig. 2. CT scan of the abdomen and pelvis shows a rapid progression of the abdominal lymphoma and worsening of the thickened bowel loops with inseparable loops in the suprapubic region.

Chemotherapy was deferred because the patient was critically ill.

Despite prolonged intravenous antibiotics and physiotherapy the patient showed little clinical or radiological improvement in his pneumonia. On the 26th postoperative day the patient developed an acute deterioration with increasing respiratory distress. A CT scan of the abdomen and pelvis showed a rapid progression of the abdominal lymphoma and worsening of the thickened bowel loops since the last scan, with inseparable loops in the suprapubic region (Fig. 2). Peritoneal and mesenteric lymphomatous deposits were now present and an anterior abdominal wall enhancing nodule was also noted. The patient continued to deteriorate and died shortly afterward.

Discussion

Sporadic (American) BL accounts for 1% to 2% of all adult lymphomas in Western Europe and the United States. Incidence of specifically adult onset BL in Singapore is not reported. BL is one of the fastest growing human malignancies, with a 100% replication rate and a doubling time of approximately 25 hours. Intra-abdominal presentations usually affect the bowel (most commonly the distal ileum/ileocaecal region) or intra-abdominal lymph nodes; however, involvement of other organs such as the kidney, pancreas, liver, spleen, breast and ovaries has been documented.¹

The presentation of abdominal BL is non-specific and may include abdominal distension, perforation, bowel obstruction or gastrointestinal bleeding. Possible aids to clinical diagnosis include the palpation of an intra-abdominal mass. A high index of suspicion is also warranted in patients who present with small bowel perforations or intussusception. CT may show thickening of a segment of bowel or a target or pseudokidney sign representing intussusception. In the emergency setting, the diagnosis of lymphoma is usually made postoperatively.

Chemotherapy is the mainstay treatment for all variants of BL. Short, high intensity multiagent drug therapies developed from paediatric practice have produced favourable outcomes in adults and have improved the prognosis of both early and advanced BL with complete remission rates of 75% to 90%.^{2,3}

Surgery plays a limited role predominantly in the treatment of complications.^{4,5} Primary resection is considered in local disease but is controversial due to the availability of highly effective chemotherapy. If primary resection has been undertaken this must be followed by chemotherapy as there have been no reports of cure with resection alone.

Poor prognostic factors for BL include advanced age, late stage disease, and a poor performance status. Other factors indicative of a worse outcome include the delay/contraindication of chemotherapy, an emergency presentation and the number of extranodal disease sites.^{1,6} While prognosis in this case was always poor, we speculate that outcome may have been different if chemotherapy had been started in the early postoperative period.

In conclusion, BL is a rapidly progressive malignancy that may present with surgical complications. Postoperatively consideration should be made for early chemotherapy in an attempt to treat residual disease before rapid tumour replication results in further complications and death.

REFERENCES

1. Blum KA, Lozanski G, Byrd JC. Adult Burkitt leukemia and lymphoma. *Blood* 2004;104:3009-20.
2. Todeschini G, Tecchio C, Degani D, Meneghini V, Marradi P, Balter R, et al. Eighty-one percent event-free survival in advanced Burkitt's lymphoma/leukemia: no differences in outcome between pediatric and adult patients treated with the same intensive pediatric protocol. *Ann Oncol* 1997;8 Suppl 1:77-81.
3. Mead GM, Sydes MR, Walewski J, Grigg A, Hatton CS, Pescosta N, et al; UKLGY06 collaborators. An international evaluation of CODOX-M and CODOX-M alternating with IVAC in adult Burkitt's lymphoma: results of United Kingdom Lymphoma Group LY06 study. *Ann Oncol* 2002;13:1264-74. Erratum in: *Ann Oncol* 2002;13:1961.
4. Frappaz D, Miron I, Brunat-Mentigny M, et al. Is there still a place for initial surgery in advanced Burkitt's lymphoma (BL) [abstract]? *Proc Am Soc Clin Oncol* 1995;14:1295.
5. Abbasolu L, Gun F, Salman FT, Celik A, Unuvar A, Gorgun O. The role of surgery in intraabdominal Burkitt's lymphoma in children. [Journal Article. Research Support, Non-U.S. Gov't]. *Eur J Pediatr Surg* 2003;13:236-9.
6. A predictive model for aggressive non-Hodgkin's lymphoma. The International Non-Hodgkin's Lymphoma Prognostic Factors Project. *N Engl J Med* 1993;329:987-94.

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