Periampullary Lymphoma Masquerading as Adenocarcinoma

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Received: 2 October 2012 / Accepted: 19 March 2013 / Published online: 28 March 2013
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Introduction

Adenocarcinoma is the most common tumor of the peri-ampullary region, while peri-ampullary lymphoma (PAL) is a very rare malignancy. In a retrospective analysis of 1123 biliary obstruction patients, Non-Hodgkins Lymphoma (NHL) was found in only 4 (0.35 %) and obstructive jaundice was found in only one and in other case series it was the cause of malignant biliary obstruction in 1–2 % [1]. Various hematological malignancies can involve the peri-ampullary region, most commonly as follicular lymphoma. Diffuse large B-cell lymphoma (DLBCL) in this region is very rare and may mimic carcinoma [2]. The PAL can have variable clinical presentations; diagnosis is by endoscopic or laparoscopic biopsy with immunohistochemistry (IHC). In general jaundice in DLBCL is usually caused by enlarged lymph nodes compressing the hepatic hilar or peri-pancreatic region and DLBCL presenting as peri-ampullary mass with obstructive jaundice is rarely seen [3]. We report a case of DLBCL involving the peri-ampullary region presenting as obstructive jaundice and masquerading as adenocarcinoma.

Case Report

A female patient aged 45 years with type 2 diabetes mellitus, presented to the hospital elsewhere with complaints of

yellowish discoloration of eyes, vomiting, pain abdomen and itching. On examination she had icterus and scratch marks with non-tender mass palpable in the right hypochondrium and epigastrium. Hemogram was normal. Total bilirubin was 5.9 mg/dl (Direct bilirubin- 3.4 mg/dl). Ultrasound abdomen revealed mass lesion of size $8.1 \times 6.7 \times 7.1$ cms, with full of thick internal echoes, at the porta hepatis adjacent to the head of pancreas causing pressure effect on common bile duct. On upper gastrointestinal endoscopy, scope could not be negotiated beyond first part of duodenum because of obstruction. Laparotomy showed large pancreatic head mass compressing duodenum. The biopsy of the mass was done with palliative cholecystojejunostomy with anterior gastrojejunostomy. Biopsy revealed as adenocarcinoma elsewhere and no IHC was done. MRI abdomen and pelvis (Fig. 1) showed large well defined soft tissue mass measuring $8.9 \times 7.6 \times 7.6$ cms, in the peri-ampullary region involving the pancreatic head and second part of the duodenum appearing hypointense in T1 image and heterogeneously hyperintense on HASTE images. The mass showed enhancement with central few non-enhancing areas suggestive of necrosis. There was a sub centimeter peri-pancreatic lymph node. On MR Cholangiopancreatography mass was seen compressing the pancreatic duct with dilatation in body and tail region. She underwent Whipple procedure after which she was referred to our institute and the operated specimen was submitted for review. The specimen consisted of a capsulated mass of $13 \times 11 \times 7$ cms along with portion of a pancreas and a segment of duodenum. Eight lymph nodes were identified. The tumor was firm and showed greyish white lobulated areas. The histopathology showed sheets of uniform cells infiltrating the submucosa of duodenum (Fig. 2) and sections from the pancreas showed features of chronic pancreatitis with lobular fibrosis. IHC showed neoplastic cells were positive for LCA, CD 20, bcl-2 and negative for CK and CD 30, features suggestive of DLBCL. One of the eight resected lymph nodes was involved by lymphoma. CT scan neck and thorax was normal. Bone marrow biopsy shows no

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Fig. 1 MRI scan showing heterogeneously hyperintense mass in the periampullary region

involvement by lymphoma. As per the modified Cotswold's staging system it was staged as stage II_{AEX} and International Prognostic Index was zero. Patient was not affordable for rituximab and received 6 cycles of chemotherapy with CHOP regimen (cyclophosphamide 750 mg/m², doxorubicin 50 mg/m², vincristine 1.4 mg/m² and prednisolone 100 mg/d for 5 days) for every 21 days. Patient tolerated the chemotherapy well and is on follow-up with disease free duration of 18 months.

Discussion

The most common type of gastrointestinal lymphoma is DLBCL. Stomach is the most frequent site involved by extra nodal B-cell NHL, duodenum is a rare site and peri-ampullary region being even rarer [2]. However, the most common lymphomas in the ampullary and peri-ampullary region are follicular lymphoma followed by marginal zone lymphoma and mantle cell lymphoma [4]. Anaplastic large cell lymphoma was also reported in post renal transplant patient [5]. DLBCL in this region is very rare.

Even though there are few case reports of DLBCL involving duodenum and as a primary pancreatic lymphoma, sometimes it is almost impossible to ascertain the exact origin of the tumor anatomically especially with bulky tumors. In our case, on laparotomy the mass was seen arising from the head of pancreas and the tumor was seen infiltrating the duodenal wall. On histopathological examination, pancreas was free of tumor and duodenum showed lymphoma cells in submucosa (Fig. 2).

Fig. 2 Low power view showing duodenal mucosa with subepithelial tumor tissue. (H & E, 100×)

In a review of 42 peri-pancreatic lesions, 27 were clinically suspicious for hematologic malignancies. Of the remaining 15 cases, 4 patients underwent resection for presumed pancreatic adenocarcinoma. Seven were limited to the peri-pancreatic zone [6]. In a retrospective study of ten patients with NHL presenting with obstructive jaundice seven cases underwent laparotomy before the diagnosis as in the present case [7].

PAL is likely to be clinically and radiologically mistaken for pancreatic adenocarcinoma. A high index of suspicion and careful histopathological examination with IHC is necessary for correct diagnosis of lymphoma.

If the core-needle biopsy specimen is inadequate, a minimally invasive surgical technique such as laparoscopy is preferred. It is successful in about 80 % of patients with minimal complications and avoids surgery [8].

In our case, preoperative biopsy done elsewhere was diagnosed as adenocarcinoma. No IHC was done. Thus, the patient underwent Whipple's resection. As the standard treatment for DLBCL is chemotherapy, correct biopsy with IHC diagnosis could have possibly prevented this morbid surgery. However, surgery plays an important role when an accurate pre-operative diagnosis cannot be established and may be necessary to resolve the obstructive jaundice [4].

In general, about 1–2 % of adults with lymphoma may present with jaundice and usually caused by enlarged lymph nodes compressing the hepatic hilar and peri-pancreatic region. Other rare causes of obstructive jaundice are direct hepatic involvement by lymphoma, primary duodenal lymphoma with invasion of the extrahepatic bile duct, primary extrahepatic bile duct lymphoma and compression of the bile duct by primary pancreatic lymphoma [9].

Limited stage DLBCL (stage I or II) which can be contained within one irradiation field accounts for 30–40 % of patients with DLBCL and chemotherapy is the mainstay of treatment for DLBCL [10]. Although chemotherapy alone usually alleviates the obstructive jaundice in patients with NHL presenting with jaundice, it remains unclear whether biliary drainage procedure should precede it [7]. In a study of five patients with NHL treated with chemotherapy or radiation therapy without prior biliary decompression, obstructive jaundice was relieved rapidly (2–5 days) in all the five patients with complete remission [11].

Earlier, the standard chemotherapy for localized DLBCL was 4 cycles of CHOP-like chemotherapy with radiotherapy (RT) but CHOP plus rituximab has become the preferred regimen based upon number of randomized trials primarily involving patients with advanced DLBCL.

The randomized Mabthera international trial has demonstrated an overall survival benefit with the addition of rituximab to 6 cycles of CHOP-like chemotherapy with RT and is the only trial which has included patients with limited stage bulky disease, but the number of patients with bulky disease was small (3 %) [12].

The patients with bulky stage II DLBCL are treated with 6 cycles of rituximab with CHOP-like chemotherapy with involved field RT (30 to 40 Gy). The stage II bulky DLBCL has a less favorable prognosis than those with stage II non-bulky disease [11]. Our patient received 6 cycles of CHOP chemotherapy following surgery and remains disease free after 18 months of follow-up.

In conclusion, DLBCL in the peri-ampullary region is a rare disease and an extremely rare cause of obstructive jaundice. Establishing the histopathological diagnosis with IHC is essential because the primary modality of treatment is chemotherapy and prognosis differs dramatically compared to adenocarcinoma. Surgery plays an important role when an accurate histopathological diagnosis cannot be established and may be necessary to resolve the obstructive jaundice. Therefore, a high index of clinical suspicion and an accurate histopathology with immunohistochemistry is necessary in identifying patients with primary non-Hodgkin's lymphoma of the peri-ampullary region.

Acknowledgements I would like to thank medical oncologist Dr. Linu Abraham Jacob, Dr. Rajeev L.K, surgeon Dr. Mohan das A.S, staffs and postgraduate students from department of medical oncology,

a special thanks to Dr. Malathi.M from department of pathology and Dr. Kunal naidu.G from department of radiodiagnosis at Kidwai memorial institute of oncology, Bengaluru for their help and support in preparing this manuscript.

Conflicts of Interest None

Source of Funding Nil

References

1. Odemis B, Parlak E, Basar O, Yuksel O, Sahin S (2007) Biliary tract obstruction secondary to malignant lymphoma: experience at a referral center. *Dig Dis Sci* 52:2323–2332
2. Ramadwar MR, Deodhar K (2008) Pathology of the periampullary tumors. In: Shrikhande SV, Fries H, Bchler MW (eds) *Surgery of pancreatic tumors*, 1st edn. BI publications private limited, New Delhi, p 70
3. Berek L, Orron D (1986) Non-Hodgkin's lymphoma presenting as periampullary mass with obstructive jaundice. *J Comput Tomogr* 10:89–92
4. Trivedi P, Gupta A, Pasricha S (2012) Primary diffuse large B-cell lymphoma of ampulla of vater: a rare case report. *J Gastrointest Canc* 43:340–343
5. Dorwal P, Malhotra V, Kaul S, Agarwak DK (2011) Late onset post renal transplant anaplastic large T-cell lymphoma of peri-ampullary region. *Trop Gastroenterol* 32(2):136–138
6. Rock J, Bloomston M, Lozanski G, Frankel WL (2012) The spectrum of hematologic malignancies involving the pancreas: potential clinical mimics of pancreatic adenocarcinoma. *Am J Clin Pathol* 137(3):414–422
7. Hashimoto N, Umekita N, Noda K (2008) Non-Hodgkin lymphoma as a cause of obstructive jaundice with simultaneous extrahepatic portal vein obstruction: a case report. *World J Gastroenterol* 14(25):4093–4095
8. Mann G, Conlon K, LaQuaglia M, Dougherty E, Moskowitz C, Zelenetz A (1998) Emerging role of laparoscopy in the diagnosis of lymphoma. *J Clin Oncol* 16:1909–1915
9. Kondo N, Furuya H, Yamamoto S, Nakano A, Sakashita Y (2008) Diffuse large B-cell lymphoma in the ampulla of vater causing obstructive jaundice: report of a case. *Surg Today* 38:76–80
10. Miller TP (2008) The limits of limited stage lymphoma. *J Clin Oncol* 22:2982–2984
11. Dudgeon DJ, Brower M (1993) Primary chemotherapy for obstructive jaundice caused by intermediate-grade non-Hodgkin lymphoma. *Cancer* 71:2813–2816
12. Pfreundschuh M, Trumper L, Osterborg A et al (2006) CHOP-like chemotherapy plus rituximab versus CHOP-like chemotherapy alone in young patients with good-prognosis diffuse large-B-cell lymphoma: a randomised controlled trial by the MabThera International Trial (MInT) Group. *Lancet Oncol* 7(5):379–391