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Case Report

Locally Advanced Colon Cancer Infiltrating Duodenum and Pancreas in a Young Woman, Case Report and the Literature Review

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Abstract

Right locally advanced colon cancer, invading duodenum and pancreas raises challenging dilemmas considering the complexity of curative surgical procedures. Radical surgery performing right hemicolectomy and Pylorus-Preserving-pancreatico-duodenectomy achieves free margins.

We are presenting a rare case, a young, 24 years Caucasian female, with severe anemia, diagnosed by biopsy during colonoscopy as right locally advanced colon carcinoma, and abdominal CT which didn't distinguished colon tumor stage preoperative T4 invasion of duodenum and pancreatic head. Patients young age, good condition after resuscitation, without distant metastases, dedicated and experienced surgical team, under locally finding of advanced colon carcinoma with infiltration of duodenum and the head of pancreas, we have decided intraoperatively performing radical multivisceral resection.

En bloc resection, right hemicolectomy and Pylorus-Preserving-pancreatico-duodenectomy achieved free resection margins. Patient improved after R0 resection and discharged in good general conditions.

During nine months follow-up and disease free, is under surveillance and treatment from interdisciplinary team.

En bloc multi visceral resection at right locally advanced colon cancer with pancreatic and duodenal infiltrations and severe anemia is considerable treatment solution and acceptable risk for unselected conditionally stabile patient and dedicated surgical team.

Keywords: Right locally advanced colon carcinoma; Malignant pancreatic infiltration; Malignant duodenal infiltration; Right hemicolectomy; Pylorus-Preserving-pancreatico-duodenectomy

Introduction

Colorectal cancer is the fourth most common type of cancer and the second major cause of death due to cancer [1]. Locally Advanced Colon Cancers (LACCs) are classified as a T4b lesion by the American Joint Committee on Cancer (AJCC) staging system. Locally advanced colorectal cancers invading into adjacent organs account for 5.5%-16.7% of all colorectal cancers [2,3]. Right colon cancer invading adjacent organ is rare (11-28%). Although the right sided colon may invade various organs such as right kidney, ureter, liver, or gallbladder, the direct invasions of duodenum or pancreatic head, [3,4] and in this situation, *en Bloc Right Hemicolectomy with* Pancreaticoduodenectomy (RHCPD) is necessary to achieve R0 resection [2]. We are presenting here our case report and review the literature.

Case Presentation

We are presenting a young, 24 years Caucasian female, a transfer from GI Department with severe anemia, diarrhea, vague, dull abdominal pain, unintentional weight loss and poor appetite, without hematochezia or melena. EGD-scopy revealed normal findings. During colonoscopy was diagnosed as locally advanced coecal carcinoma by biopsy. Abdominal CT didn't distinguished colonic tumor stage preoperative T4 with invasion of duodenum and pancreatic head. Significant physical exam findings included mild, diffuse abdominal tenderness and RUQ palpable mass, and normal bowel sounds. Labs were significant for a hemoglobin from 6.8; hematocrit of 24.1%, total protein 51.8; CEA:2.81; CA 19-9:20.39; AFP:0.668; Calprotectine:189.7. She had received preoperatively blood derivates and orally liquids rich with protein.

Operative details

During the explorative median laparotomy, primary cancer was in ascendant colon. Intra-operative discovery of Locally Advanced Colon Cancer (LACC) infiltrating duodenum and head of pancreas, without evidence of metastatic disease or major vascular encasement, we decided considering patients young age, performing simultaneously *en-block* resection, Right Hemicolectomy (RH) and Pylorus-Preserving-Pancreatico-Duodenectomy (PPPD). Resection macroscopic margins were free.

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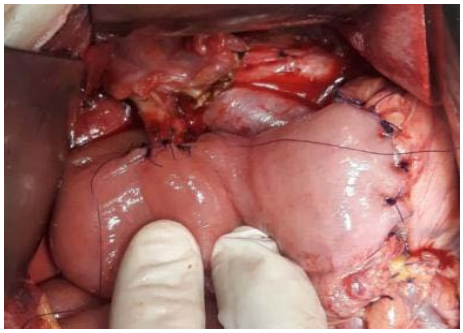

Figure 1: Pancreatico-jejunostomy, CBD-jejunostomy.

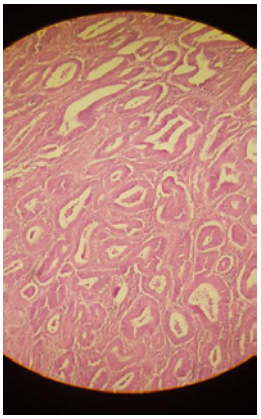

Figure 2: Colon carcinoma.

Ileo-colic reconstruction, end-to side, was first performed; Pancreatico-Jejunostomy (PJ), end-to-end, (fish mouth), with interrupted sutures; CBD caliber around 5 mm, incised on upper wall 5 mm and made wider bile-jejuno-anastomosis, (Figure 1) end-to-side using interrupted sutures. A one-layer duodeno-jejunal anastomosis, end to side, was performed with interrupted sutures. We had used absorbable suture material. No feeding jejunostomy. Two abdominal drains were placed adjacent to the bile and pancreatic anastomosis.

Improvement after R0 surgical treatment was obvious and discharged in good general conditions.

HP end results: Adenocarcinoma Colonis pT4b, pN0, R0, stage IIIc, Astler –Coller C2, G2, Lymphadenitis reactiva 27/27, with duodenal and head of pancreas infiltration (Figure 2,3,4). R0 are circumferential resection margins. She had received adjuvant chemotherapy. After nine months follow up, she is disease free.

Discussion

Locally advanced colorectal cancer is characterized by the neoplasm invading neighboring organs but not presenting any distant spreading. 5-12% of colon cancers present invasion of adjacent structures [1]. Grey Turner in 1929 published the first duodenal resection for locally advanced right colon cancer [3,5].

Van Prohaska performed the first Duodenopancreatectomy for locally advanced colon cancer invasion in 1953 [1,3].

Calmenson & Black (1947) presented a series of eight patients

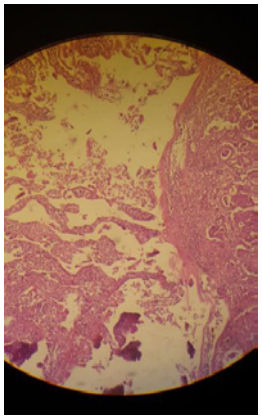

Figure 3: The duodenal wall infiltrated with tumor.

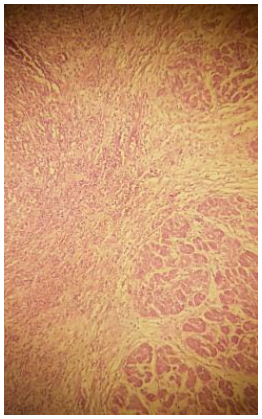

Figure 4: Pancreas infiltrated with tumor.

with LACC with duodenal invasion. After duodenal resection, survival rate after a year was 0% (three dying immediately in the post-operative period) [6].

In the right-sided colon cancer, the rate of malignant infiltration in adhesion between the cancer and adjacent organs has been reported to range from 71%-94%, and separation of colon cancer from the adherent organs may lead to tumor recurrence rates of 90%-100% [2].

It is recommendation to maintain high index of suspicion of malignant infiltration for tumor adherence to duodenum or pancreatic head during surgery and avoiding any possibilities of under treatment [4].

Majority of patients presented with a symptoms such as a mass, abdominal pain, anemia and weakness or rarely without them [3,4].

Male Gender is slightly higher represented, the mean-age is from 42-77 years (range,41-83) [1-4,7,8].

CT is a standard tool for preoperatively staging colon cancers and detecting distant metastases to the liver.

Preoperative CT reliability for identifying malignant infiltration was found by Kaneda in 80% (4/5 pts) with malignant infiltration of duodenum, in 50% (2/4 pts) with malignant infiltration of pancreas in 66.7% (6pts) [4] and 80% (4/5 pts) [3].

Upper GI endoscopy can be performed in suspicious cases, but it should not be forgotten that it could be normal if invasion of the duodenum did not reach the mucosal layer [3].

Intraoperative findings of LACC duodenal infiltrations were between 33% (3/9 pts) [3], to 50% (1/2 pts) [7], requiring PD combined with an *en bloc* extended right hemicolectomy.

Some authors report no major morbidities or 30 day perioperative mortalities [3,4,9]. Kaneda reported 60% (3/5 pts) with pancreatic fistula, even the pancreatic duct stent was routinely used in pancreatojejunostomy; Costa reported one pancreatic leak, conservatively treated and one evisceration reoperated. Loutfy reported ileocolic anastomosis leak, with mortality after four month. Mortality rate between 0 and 30 days after en bloc pancreas and colon resection is 6.3% [10]. They are reports with R0 resection margins in 80% [2] and 100% [2,9].

Saiura reported that patients with node-negative status achieved a significantly longer survival than node-positive patients [8]. They are reports without metastatic involvement of lymph nodes [1]; and with involvement in 33.3% [4], 40% [2] and 100% [3,7].

The prolonged survival of many patients undergoing potential radical en bloc resection for LACC may be explained by the relatively low incidence of regional lymph node metastases in these patients [4].

This long-term survival following multivisceral resection may be explained by the fact that 45% of cases of locally advanced colorectal cancer do not present any compromised lymph nodes (N0) [1].

Survival rate differs from the authors, from 4 months [6], 19.5 months [7], more than 24 months [1,3,4,9], more than 51 months [12]. Kaneda et al. have 2 pts. that survived for more than 7 years [2]; Saiura et al. reported survival rate more than ten years, in 5 pts. and Berrospi in 1 pt. [8,12].

There is survival with lymph node metastasis for more than six years, 1 pt without recurrence [3]. Recurrent diseases developed in 33% [1], (44%) [4]; or 80% [3] of the patients.

They are poor results from palliative surgery, bypass or incomplete resection (R1-2), the mean survival period was 3-9 months [1].

Incomplete resection and separation of colon cancer from adherent organs are considered to lead to tumor recurrence and a poor prognosis [2]. Only histology examination allows a certain diagnosis of adhesions or infiltration of the adjacent organs intraoperatively and of the extent of the colonic cancer [11].

Conclusion

Aggressive surgical approach, at locally advanced colonic cancers, with pancreatic and duodenal infiltrations and severe anemia, is considerable treatment solution when complete tumor Removal (R0) is achievable and acceptable risk, for unselected conditionally stabile patient, and dedicated surgical team.

We believe that with an experienced team, post-operative mortality and post-operative morbidity rates of right hemicolectomy with en bloc Pancreaticoduodenectomy (PPPD) are considerably lower than other methods of treatment.

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