

Successful management of inoperable Klatskin's tumour by high dose intra luminal brachytherapy without the need for post radiation stenting

C. Sambhaji¹, C. Shetty¹, V. Joseph², B.M. Vadhiraj³, M.S. Vidhyasagar³

(1) Department of Radiodiagnosis and Imaging, (2) Undergraduate, (3) Department of Radiotherapy, Kasturba Medical College, Manipal.

Abstract

We present a case of Klatskin's tumour managed by high dose Intra Luminal Brachytherapy without the need for post radiation stenting. We achieved significant reduction in the cost of treatment and avoided complications associated with stenting. We were able to attain a symptom and disease free survival period of 30 months till the patient finally succumbed to metastatic peritoneal disease. We assume that small Klatskin's tumours as in the presented case with a size less than 3 cms when subjected to high dose Intra Luminal Brachytherapy with the help of 3D computed planning ensuring good tumour coverage may not require post radiation assisted biliary drainage. (*Acta gastroenterol. belg.*, 2013, 76, 257-259).

Key words : Klatskin's tumour, Hilar cholangiocarcinoma, high dose Intra Luminal Brachytherapy (ILBT), Percutaneous Biliary Drainage (PTBD), stenting.

Introduction

Klatskin's tumour or Hilar Cholangiocarcinoma occurs at the junction of right and left hepatic ducts. This tumour is relatively rare and usually not resectable at the time of presentation. Frequently stenting or catheterization is done as a palliative measure to relieve obstruction (1). Lately Intra Luminal Brachytherapy (ILBT) has been tried as a palliative treatment modality to relieve bile duct obstruction (2).

We report a case of an inoperable Klatskin's tumour where following percutaneous biliary drainage (PTBD), ILBT was employed as a palliative measure. No post radiotherapy stenting was done and subsequently the patient was also weaned off the PTBD catheters following the finding of no evidence of the primary tumour on imaging. The patient had a symptom free survival of two years and six months following brachytherapy till he finally succumbed to metastatic peritoneal disease.

Case Report

A 70-year-old male came to our hospital with chief complaints of yellowish coloration of sclera and skin and severe itching for 15 days. The patient had decreased appetite, high coloured urine, clay coloured stools and significant weight loss for approximately the same period of time. He had no other co-morbidities. On examination, slight pallor, severe icterus and scratch marks were noted. The liver was palpable 6 cms below the costal margin.

Laboratory evaluation showed prolonged PT and APTT. Liver function tests revealed obstructive jaundice.

CT scan (Fig. 1) of the abdomen showed an enhancing mass measuring 2.6 × 2.7 cm centered at the confluence of both hepatic ducts. The findings were consistent with Klatskin's tumour. Cytological evaluation confirmed adenocarcinoma. The patient was deemed unfit for surgery and referred to Department of Radiodiagnosis for palliative management. PTBD of the left and right hepatic ducts was achieved and 10 F internal-external type of PTBD catheters were placed across the confluence of both ducts into the second part of the duodenum. Post procedure the patient improved symptomatically and his liver function tests showed a trend towards normalization. Subsequently, the patient had to come for repetitive catheter change for recurrent pericatheter leak and catheter blockage. At this point, Radiation Oncology consultation was solicited and ILBT/RT was planned. High dose rate (HDR) Brachytherapy using Source Iridium 192 was given with the help of a remote afterloader (Nucletron Microselectron) through the PTBD catheters. A total of 30 gray of radiation was administered in 6 fractions, 2 fractions a day with an interfraction interval of minimum 6 hours over 3 days. The dose distribution and planning of tumour coverage was done on the 3D plato planning system (Fig. 2).

The general management protocol for Klatskin's tumour in our hospital is to stent the patient 4 weeks after receiving the high dose ILBT. However the patient was received by us only 6 months later after having inadvertently pulled out his right PTBD catheter. A check cholangiogram from the left revealed biliary tree patency, with no evidence of the obstructive hilar lesion. The Patient was advised stenting however he refused to consent for stenting citing his symptom free status and improved quality of life. At subsequent follow up 3 months later, the left internal- external PTBD was also removed after

Correspondence to : C. Sambhaji, Associate Professor, Department of Radiodiagnosis and Imaging, Kasturba Medical College, Manipal, 576104 Karnataka, India. E-mail : maildr.charu@gmail.com

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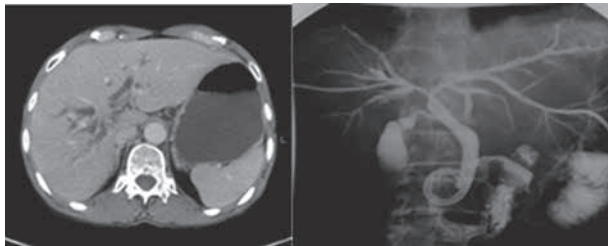


Fig. 1. — CT abdomen showing a small mass lesion at the confluence of the right and left hepatic ducts. The corresponding cholangiogram reveals a filling defect.

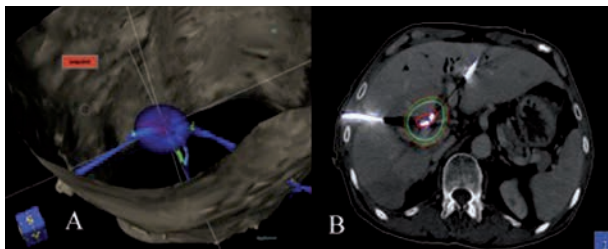


Fig. 2. — (A) 3D reconstruction of the tumour inside bile duct. (B) The planned dose distribution around the tumour using the 3D plato planning system.

establishing patency of the biliary tree and absence of recurrent tumour (Fig. 3).

The patient continued to come for regular follow up and at no point during this period did he manifest any evidence of obstructive jaundice or any other symptoms. 2 years and 7 months following the ILBT, the patient presented with abdominal distension for 1 month, there was no evidence of obstructive jaundice. Abdominal ultrasound and CT performed showed no dilatation of the biliary tree ; a well defined lesion was seen in segment 7 of the liver that appeared to have ruptured into the peritoneal cavity with presence of ascites. Ascitic fluid cytology showed malignant cells. Biopsy of the lesion showed metastasis from adenocarcinoma. The patient was treated with ascitic fluid drainage and intra peritoneal chemotherapy. He expired 2 months later.

Discussion

Klatskin's tumour or Hilar Cholangiocarcinoma is an uncommon tumour. Bismuth divided it into four types, according to the location and extent of the tumour (3). The only curative treatment is surgical resection with negative margins. Unfortunately, radical surgery is applicable in about 20% of cases, the remaining patients being candidates only for palliative therapies for their symptoms especially pruritus and cholangitis (4,5).

High dose ILBT is a very rewarding palliative treatment option with low post procedure morbidity, short hospital stay, far lesser cost of treatment as compared to surgery and at the same time is effective in relieving biliary obstruction yielding a much better quality of



Fig. 3. — Follow up cholangiogram at 9 months shows luminal patency at the confluence (small blood clot seen in the left hepatic duct).

life (6). The advent of 3D computed planning has greatly improved the accuracy of delivery of radiation to the targeted tumour site. Also high dose ILBT unlike External Beam radiotherapy causes less radiation related side effects as it bypasses the radiosensitive skin and superficial structures and spares the surrounding structures from radiation toxicity.

In the presented case, brachytherapy worked excellently well alone without the need for any assisted drainage procedure. The primary tumour was small enough and centered at the confluence to be adequately covered by brachytherapy. By not stenting, there was drastic reduction in the cost of treatment and the complications associated with stenting were also avoided.

In patients undergoing curative resection the mean survival rate is reported to be around 25 months (7,8). However as mentioned earlier 80% of the cases of Klatskin's tumour do not fit into the criteria for radical surgery and are subjected to palliative procedures like ILBT. The mean survival in the group of patients receiving ILBT is only 11-15 months (9,10). In the presented case the patient had symptom and disease free survival of 30 months without the need for any aided biliary drainage till he succumbed to metastatic peritoneal disease. Macchia *et al.* presented an isolated case of papillary cholangiocarcinoma involving the left hepatic duct, which they managed with ILBT without stenting (11).

The case report presented by us is the only report of its kind in literature that manages a Klatskin's tumour with high dose ILBT without post radiation stenting with a reasonably long period of disease free survival.

This case report shows that small klatskin's tumours (size less than 3 cms) allow good coverage by High dose ILBT when dose distribution is planned with a 3D planning system resulting in complete clearance of the hilar mass and consequentially allowing to maintain the patient without post radiation stenting ; an improvisation in management that avoids the cost and complications associated with biliary stenting. Hence, it is worthwhile to consider weaning patients off assisted biliary drainage following ILBT after confirming absence of residual tumour.

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