Case Report

LEFT HEPATECTOMY WITH FINGER-FRACTURE TECHNIQUE FOR PRIMARY LIVER CELL CARCINOMA IN A TROPICAL LOW SOCIO-ECONOMIC POPULATION

David O. Irabor[1]

SUMMARY

The experience in managing a 36 year-old Nigerian male with a histopathologically-confirmed hepatocellular carcinoma confined to the left lobe by surgical resection of the liver, using the finger-fracture technique is presented. The literature review on the aetiopathogenesis of this disease and the role and technique of surgery in hepatocellular carcinoma is also discussed.

KEY WORDS: Finger-fracture, Liver, Resection, Hepatocellular Carcinoma.

Pak J Med Sci April - June 2008 (Part-II) Vol. 24 No. 3 452-454

How to cite this article:

Irabor DO. Left hepatectomy with finger-fracture technique for primary liver cell carcinoma in a tropical low Socio-economic population. Pak J Med Sci 2008;24(3):452-4.

CASE REPORT

A 36 year-old lecturer from the University of Maiduguri in the Bornu State of Nigeria was referred to the surgical outpatients department of the University College Hospital Ibadan with a 5-week history of a painful but progressively increasing epigastric swelling. There was no associated nausea vomiting, weight loss, easy satiety no haematemesis or melaena.

There was no previous history of jaundice or of a blood transfusion. He stopped smoking cigarettes 10 years before presentation after having smoked 2-3 cigarettes daily for about 9 years. He however claimed to have a 16-year history of alcohol ingestion of about three bottles of beer per day. There was no previous hospitalization and he was not on treatment for any intercurrent disease.

Physical examination revealed a well-built healthy looking adult male who was neither pale, nor jaundiced. He had no stigmata of chronic liver disease. Significant findings were on abdominal examination where an epigastric mass was found; measuring 10 by 8cm. The overlying skin was normal; mass was firm and non-tender with a smooth surface. One could get below but not above it was not pulsatile, dull to percussion, no bruit or venous hum heard over it on auscultation and there was no demonstrable ascites.

A diagnosis of primary liver cell carcinoma was made and confirmed with fine-needle aspiration cytology. Abdominal ultrasound scan showed that he had a 6.1cm solid mass in the left lobe of the liver. The right lobe was said to be free of masses. His packed cell volume was 36%, white blood cell count was 3000/cmm, and total bilirubin was 3.8mg% with a conjugated fraction of 1.5mg%. Alkaline phosphatase was 544iu/ml, SGOT 254 iu/ml, SGPT

David O. Irabor,
Department of Surgery,
University College Hospital Ibadan,
Nigeria.

Correspondence:

Dr. D.O. Irabor, FWACS,
Department of Surgery, U.C.H. Ibadan,
P.M.B. 5116 Ibadan, Nigeria.
E-mail: dirabor@comui.edu.ng
irabordavid@yahoo.com

* Received for Publication: December 12, 2007

* Accepted: March 18, 2008

156 iu/ml and a serum albumin of 3.9 g%. His clotting profile showed a derangement in the PTTK only which revealed a 37-second difference from the control. Urinalysis did not reveal any glucose, ketones or bilirubin, however the ph was 6.0, urobilinogen was increased and there was significant proteinuria (+). Preoperative treatment with fresh whole blood and fresh frozen plasma improved his PTTK to a 16-second differential with the control. He was scheduled for exploratory laparotomy as a Grade A Childs classification patient. Four units of fresh whole blood and 10 units of fresh frozen plasma were arranged for surgery.

At surgery, under light general anesthesia and epidural analgesia, the peritoneal cavity was entered through a bilateral sub-costal (bucket-handle) incision and a quick exploration was carried out. There was a single, bilobed tumor occupying almost the whole of the left hepatic lobe; the larger part measuring about 10 by 10cm while the smaller part was 5 by 5cm. The right lobe looked and felt grossly normal. There was no ascites or peritoneal involvement attributable to the tumor. Other intra-abdominal organs were grossly normal.

Using the Falciform ligament as the line of demarcation, fracturing of the liver parenchyma between finger and thumb was commenced. This effectively and gently exposed arterial branches, venous radicles and bile ductules which were clamped individually with number one or number two hemostats, severed and ligated with number 2-0 chromic catgut suture. This progressed slowly but definitely until the entire lobe containing the tumor had been excised. This part was then freed totally by incising the triangular ligament attaching the lobe to the left hemi-diaphragm. The estimated blood loss was 500 mls. Two drains were inserted; one sub-diaphragmatic and the other sub-hepatic to exit through separate stab wounds. The weight of the resected hepatic lobe containing the tumor was 453 grams.

His post-operative period was uneventful. Histopathology of the resected specimen showed a well-differentiated hepatocellular carcinoma with background active macro-nodular cirrhosis. He was discharged for outpatient adjuvant cytotoxic chemotherapy in the radio-oncology unit where he had four courses of Cyclophosphamide, Adriamycin and 5-Fluorouracil (CAF) chemotherapy.

A routine follow-up liver ultrasound scan performed three months after discharge showed a new solid mass in the right lobe of the liver. The patient looked well and claimed he felt well at that time. However he was told that further surgery would be futile but we will continue to follow up at the outpatients' clinic for supportive treatment. He did not come back. Later, we received a letter from his elder brother who regretted to inform us that he passed away suddenly on a date approximately 9 months after his operation.

DISCUSSION

Primary liver cell carcinoma (PLCC) affects young middle-aged males commonly in Africa and Asia.[1-3] This is attributed to the association with hepatitis B, of which the presence of its surface antigen is common in these populations in up to 80% of cases.[1-3]

Maiduguri is a city in the Sahel savannah near Lake Chad in Nigeria where a previous study showed that 84.4% of controls had evidence of hepatitis B virus infection.

PLCC typically arises in a liver that has been subjected to chronic stimulation, usually by environmental or biologic toxins that result in hepatocellular death, chronic regeneration and cirrhosis.[4] The most common causes are hepatitis B, hepatitis C and exposure to hepatotoxins notably aflatoxin B1 and ethanol.[1-4] It is also known that 60-80% of PLCC are in livers with pre-existing cirrhosis.[4]

Surgical resection is the mainstay of treatment of PLCC and, besides transplantation, the only definitive treatment.[4-8] If untreated the outlook is poor as the overall survival of such untreated cases is about 3 to 4 months after symptoms appear.[5-8]

The main hazard after resection of hepatocellular carcinoma is intrahepatic recurrence, with reported rates between 50-100% within

1 to 2 years of operation.[6-8] This recurrence is said to be higher in tumors greater than 5cm, unencapsulated and of multicentric origin (e.g. PLCC in cirrhotic patients).[6-8] It would seem that our patient had adverse factors for recurrence coupled with the fact that he was domiciled in an area with a high prevalence of hepatitis B infection and high aflatoxin load of the common foodstuff (grains are staple food in Maiduguri).[1,2]

Anicteric transmission of hepatitis B has been shown to occur frequently and is more important for hepatocarcinogenesis[1,3], thus failure to elicit a history of previous jaundice in a patient should not rule out hepatitis B infection as a precursor of PLCC. Patients who may benefit from hepatic resection are those whose hepatic biochemical test results do not show significant derangement.[6,8] The Childs-Pugh classification is popularly used in liver disease to select patients who may be fit for different types of operations with A being ideal and C poor.[5] Some authors have reserved liver transplantation for the B and C grades.[6,8]

A satisfactory access for liver operations is usually gained with a bilateral sub-costal incision which was used in this patient.[9] Generally four types of major hepatic resection are commonly employed, based on the lobar and segmental anatomy of the liver; right hepatic lobectomy, left hepatic lobectomy, right trisegmentactomy and left lateral segmentectomy.[5,9] A left hepatic lobectomy was performed in this patient because at surgery the involvement was grossly of the left hepatic lobe only. Parenchymal dissection may be done with finger-fracture or the handle of the scalpel and the biliary-vascular bundles are ligated after being clamped and divided.[5] Larger centers may use other sophisticated equipment like the ultrasonic aspirator scalpel, the harmonic scalpel or even laser to dissect the hepatic parenchyma.[5] Non-resective treatment may be achieved with the aid of selective transhepatic arterial or portal venous embolization.[10] In a low socio-economic tropical West African center, these gadgets are not available, thus finger-fracture dissection has to be the option if hepatic resection is to be performed. The tactile feedback with this procedure ensures sensitivity and gentle tissue handling. It is no doubt slower than the afore-mentioned innovations, but is effective since about a third of the patient's liver (453 grams) was resected with minimum blood loss.

It is possible that this procedure bought the patient an extra 9 months in which to tidy up his affairs before his demise.

REFERENCES

1. Gashau W, Mohammed I. Hepatitis B viral markers in Nigerian patients with primary liver cell carcinoma. Trop Geog Med 1991;43:64-7.
2. Olubuyide IO, Aliyu B, Olaleye OA, Ola SO, Olawuyi F, Malabu UH, et al. Hepatitis B virus and hepatocellular carcinoma. Trans Roy Soc Med Hyg 1997;91:38-41.
3. Ndububa DA, Ojo OS, Adeodu OO, Adetiloye VA, Olasode BJ, Famurewa OC et al. Primary hepatocellular carcinoma in Ile-Ife, Nigeria: A prospective study of 154 cases. Nig J Med 2001;10:59-63.
4. Hepatic neoplasms. In, Surgery: scientific principles and practice. Greenfield LJ (Ed). 3rd Edition, Chapter 38, pages 988-1001. Lippincott, Williams and Wilkins, Philadelphia, 2001.
5. The Liver. In, Textbook of Surgery: the biological basis of modern surgical practice. Sabiston DC Jr (Ed). Thirteenth Edition, Chapter 34, pages 1053-92. WB Saunders co, Philadelphia, 1986.
6. Grasso A, Watkinson AF, Tibballs JM, Burroughs AK. Radiofrequency ablation in the treatment of hepatocellular carcinoma – A clinical viewpoint. J Hepatol 2000;33:667-72.
7. Belghiti J, Panis Y, Farges O, Benhamou JP, Fekete F. Intrahepatic recurrence after resection of hepatocellular carcinoma complicating cirrhosis. Ann Surg 1991;214:114-17.
8. Ezaki T. Hepatocellular carcinoma. BMJ 1992;304:196-7.
9. Starzl TE, Iwatsuki S, Shaw BW, Waterman PM, Van Thiel D, Diliz HS, et al. Left Hepatic Trisegmentectomy. Surg Gyn Obstet 1982;155:21-7.
10. Bober J, Samek P. Surgery of the tumors of the liver. Bratisl Lek Listy 2002;103:403-7.