Hepatic bisegmentectomy in cirrhotic patient "CHILD A" with hepatocarcinoma outside Milan criteria

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Abstract

The incidence of hepatocellular carcinoma has increased in recent years, especially in cirrhotic patients due to alcohol and hepatitis C virus. For this reason, nowadays the treatment of these patients is carried out by a multidisciplinary team of transplant surgeons, hepatologists, oncologists and radiologists. The incidence of patients with cirrhosis who developed HCC is 2 to 8%, while in the United States the hospitalization of patients with HCC and alcohol cirrhosis was 8 to 9 per 100,000 inhabitants. This does not determine the incidence of HCC in patients with alcohol cirrhosis, but it does confirm alcohol as an important risk factor for developing hepatocarcinoma.

Key Words: Hepatocarcinoma, Cirrhosis due to Virus C, Cirrhosis due to Alcohol

Resumen

La incidencia del Hepatocarcinoma se incremento en los últimos años especialmente en los pacientes cirróticos por alcohol y por virus de hepatitis

C, por esta razón que hoy en día el tratamiento de estos pacientes está a cargo de un equipo multidisciplinario conformado por cirujanos de trasplante, hepatólogos, oncólogos, radiólogos. La incidencia de los pacientes con cirrosis que desarrollaron HCC es del 2 al 8%, en cambio en los estados Unidos la hospitalización de los pacientes con HCC y que cirrosis por alcohol fue de 8 a 9 por cada 100.000 habitantes esto no determina la incidencia de HCC en pacientes cirrótico por alcohol, pero si confirma el alcohol como importante factor de riesgo para desarrollar Hepatocarcinoma.

Palabras Claves: Hepatocarcinoma, Cirrosis por Virus C, Cirrosis por Alcohol.

Introduction

Hepatocarcinoma (HCC) is the fifth most frequent cancer and the third leading cause of

cancer-related death, producing up to 600,000

deaths per year. There is a high relationship between the presence of Hepatocarcinoma and Cirrhosis, especially those produced by Hepatitis C Virus (HCV) and Cirrhosis caused by alcohol.

The incidence of hepatocarcinoma in cirrhotic patients with HCV is 2 to 8%, and in patients with alcohol-induced cirrhosis it is 8 per 100,000 inhabitants, which determines that alcohol is an important risk factor for developing hepatocarcinoma (1).

Currently, surveillance systems have been created for the timely detection of HCC, such as quarterly follow-up programs of nodules. These surveillance programs use ultrasound and alpha-fetoprotein (AFP) monitoring, which has made it possible to reduce the mortality of these patients, offering timely and in some cases curative treatment such as surgery or transplantation (2).

These mechanisms have allowed us to have up to 34% of curative treatments in patients with a single lesion and less than 3 cm, 11.5% of patients suitable for transplantation and 12.9% of patients ideal for surgical resection (3).

In addition, within the integral management of HCC, staging algorithms or scales have been established, which have allowed optimizing the treatment and decision-making regarding surgery or transplantation. Among the staging systems we have the *Barcelona Clinic Liver Cancer (BCLC)*, *Okuda*, *Child Pugh*, *Meld*.

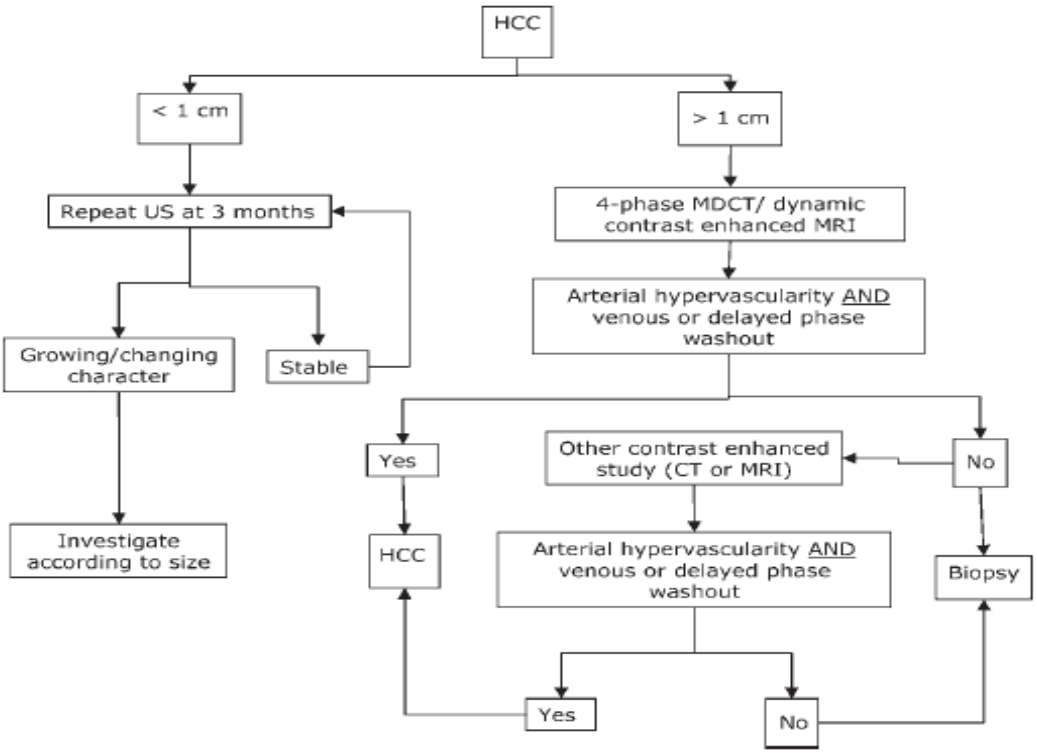

Figure 1: Algorithm for tracking small nodules.

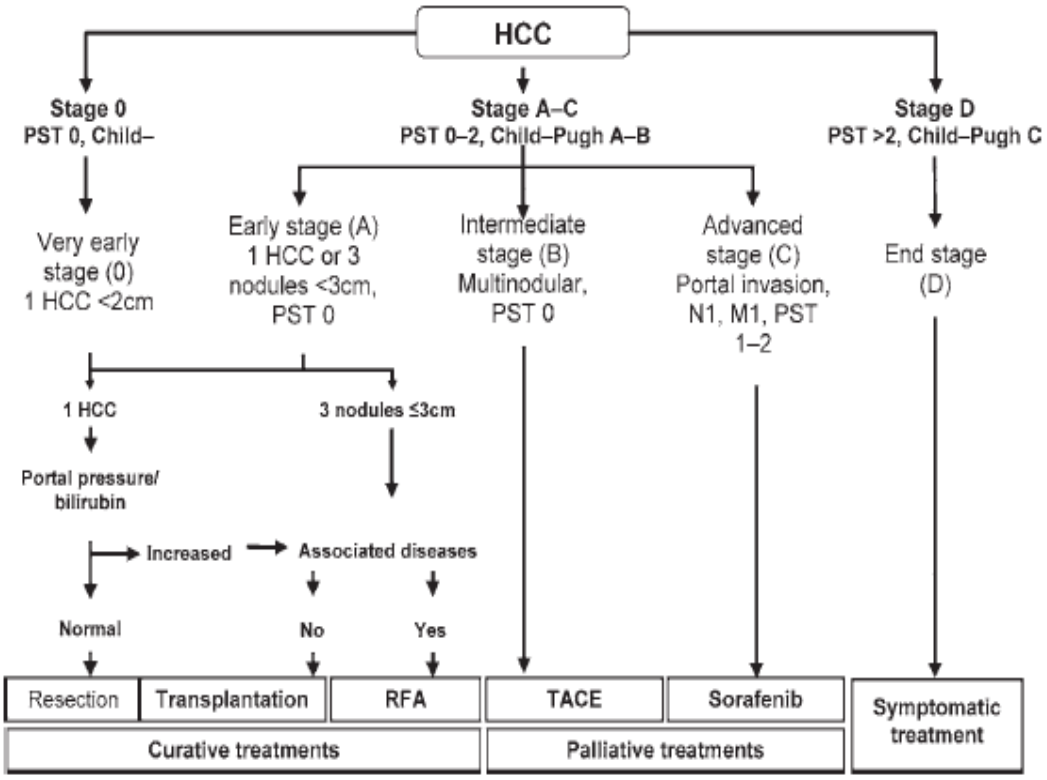

Figure 2: BCLC Statification Algorithm.

Within the statification of cirrhotic patients with HCC who are candidates for transplantation, the most commonly used criteria are the MILAN CRITERIA developed by Mazzaferro in 1996 where he demonstrated that patients with HCC who were transplanted within the Milan criteria had a survival rate of 70% at 5 years (4).

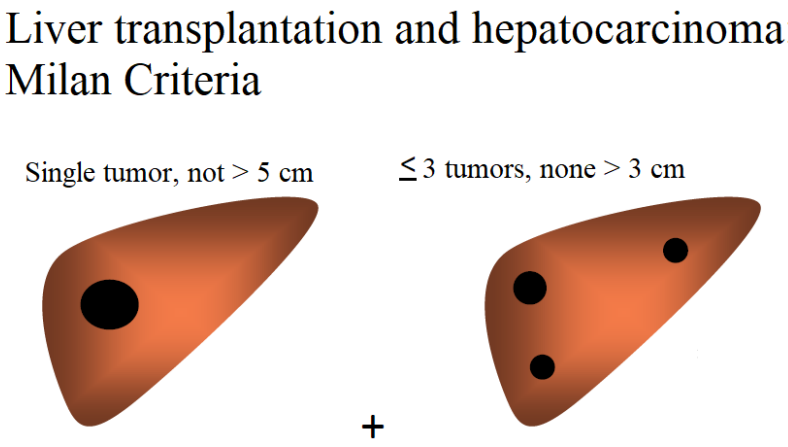

Figure 3: Milan Criteria.

Patients with HCC who are outside the Milan criteria and have no possibility of curative treatment or surgical resection can undergo alternative treatments such as radiofrequency ablation, chemoembolization, and even oncologic treatment with Sorafenib (5). Some of these alternative treatments can produce clinical improvement and even decrease the size of the nodules, which is known as DOWNSTATING, making them candidates for liver transplantation (6).

Due to all these characteristics, patients with this pathology should be referred to a high complexity hospital center with active liver transplant programs.

Case report

62-year-old male patient with a history of alcohol consumption for more than 20 years, with no clinical or surgical history of relevance. Diagnosed with cirrhosis a few months before hospitalization. No major complications such as ascites, upper gastrointestinal bleeding, encephalopathy, or jaundice.

On July 29, 2012, the patient was admitted to the hospital for hospitalization due to penetrating abdominal pain and a palpable mass in the right flank and right iliac fossa.

Imaging tests were performed, including ultrasound and tomography, which revealed an 8 cm nodular image in the right liver segments 6-7.

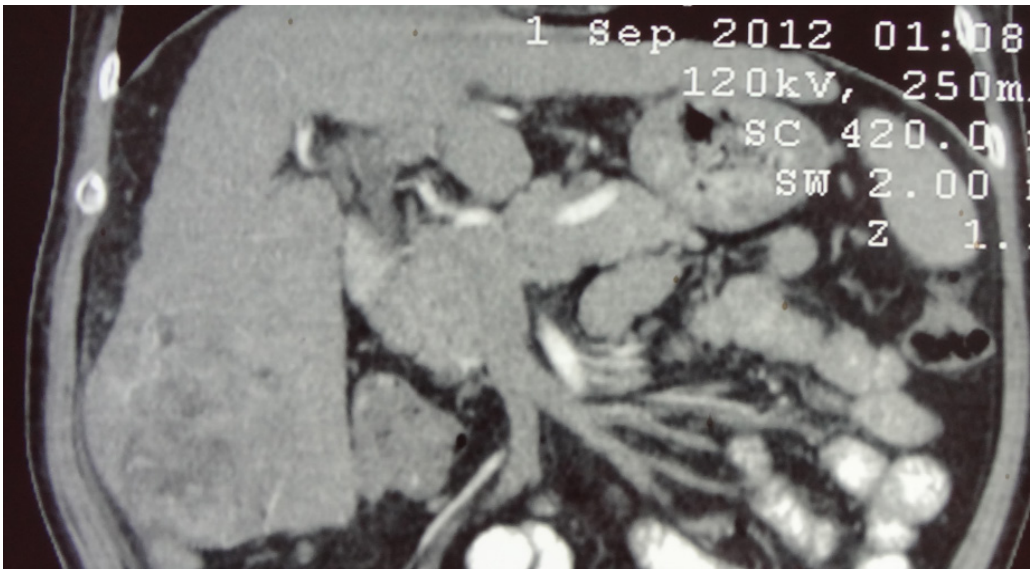

Figure 4: mass in right liver segment 6-7.

Based on the history and imaging, a diagnosis of HCC in alcoholic cirrhotic liver was made.

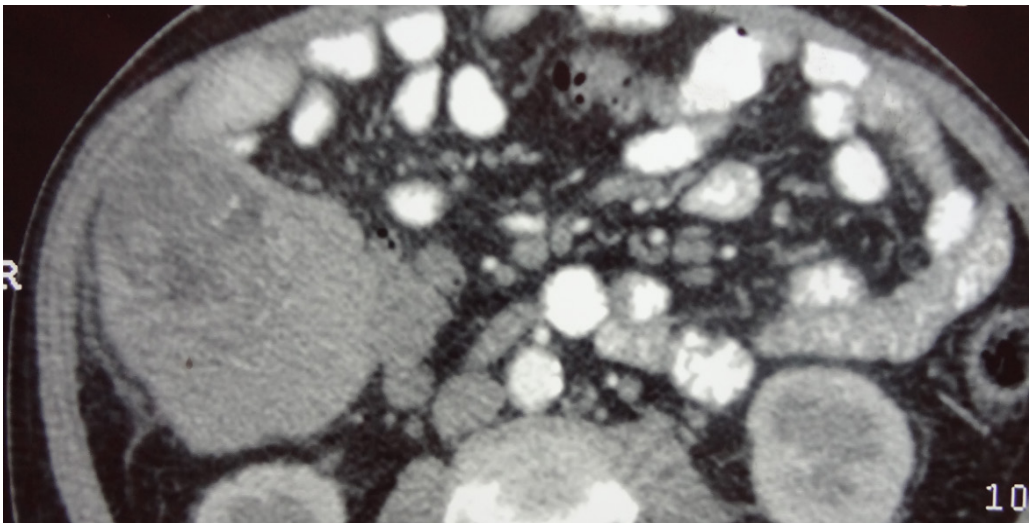

Figure 5: Hepatic Mass Hepatocarcinoma.

The diagnosis of HCC is made by performing a three-phase tomography in arterial time, portal time and late venous time. Where it was possible to observe contrast uptake in arterial time and rapid contrast washout in portal phase.

The Child-Pugh scale was used to determine the stage of evolution of cirrhosis, which was "A". In addition, upper gastrointestinal endoscopy was performed in search of esophageal varices, which were absent, and ultrasound showed splenomegaly.

DATE	BD	BI	GOT	GPT	FAL	GGT	COAG TP	Ur/Crea	Na/K
26/09	1.70	0.11	51	51	85	42	13	19/0.8	140/3.6

With all the characteristics, a diagnosis of **Child A Alcoholic Cirrhosis with HCC in segment 6-7** is reached.

HCC is evaluated for the possibility of liver transplantation, using the Milan criteria and due to its size, it is outside the criteria for liver transplantation; therefore, therapeutic alternatives such as liver resection, embolization of the tumor or palliative oncological treatment were considered.

The multidisciplinary analysis of the liver transplant team, due to the characteristics of the tumor located peripherally in segment 6-7 and in a Child A patient, suggests that the best option is to propose a Hepatectomy of segment 6-7.

For this purpose, images are analyzed for portal thrombosis, which is ruled out with Doppler ultrasound, and the functional hepatic reserve after resection is also assessed, remembering that in cirrhotic patients the minimum hepatic volume should be 40% for resection.

Considering that the surgical proposal is a Hepatectomy of segment 6-7 which corresponds to 25% of the total hepatic volume leaving a reserve of 70-75% post resection, surgery is decided as a treatment option.

The patient underwent highly complex surgery due to the procedure itself and the characteristics of the patient, all preventive measures were taken by the anesthesiology team, including placement of a peripheral line, central venous line, arterial line, and measures to maintain the patient's temperature.

A subcostal incision with medium extension was performed and lasted 6 hours and 30 minutes.

The surgical technique consisted of performing maneuvers to release the hepatic fixation ligaments, mobilization of the right liver towards the midline, dissection of the suprahepatic veins until visualizing and individualizing the right suprahepatic vein, which was left repaired.

For vascular control, a pringle maneuver was performed in the hepatic pedicle.

Figure 6: Surgical Team.

Macroscopically the liver appeared cirrhotic.

After resection, the cut surface of the liver was controlled bleeding with argon electrocautery.

Moreover, intraoperative ultrasound was used to delimit the resection line on the hepatic parenchyma, the tracking of the right suprahepatic vein within the parenchyma, the relation of the tumor with the adjacent anatomic elements, which allowed to achieve a margin of R0.

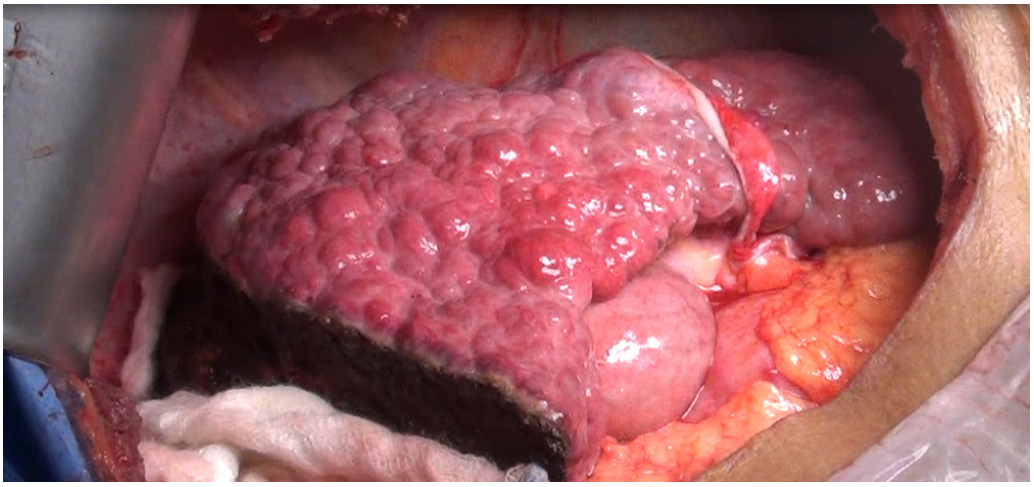

Figure 7: Segment 6-7 Hepatectomy.

At the end of the surgery, the patient was transferred to intensive care and extubated after 4 hours.

DATE	BD	BI	GOT	GPT	FAL	GGT	COAGULO	Ur/Crea	Na/K
26/09	1.70	0.11	51	51	85	42	32/13	19/0.8	140/3.6
27/09	3.9	0.6	270	247	115	60	32/18	32/0.6	140/4
28/09	2.29	0.9	175	207	114	96	55/19/1.7	69/0.58	138/3.5
1/10	3.2	1	36	90	132	129	51/18/1.6	27/0.57	134/3.2

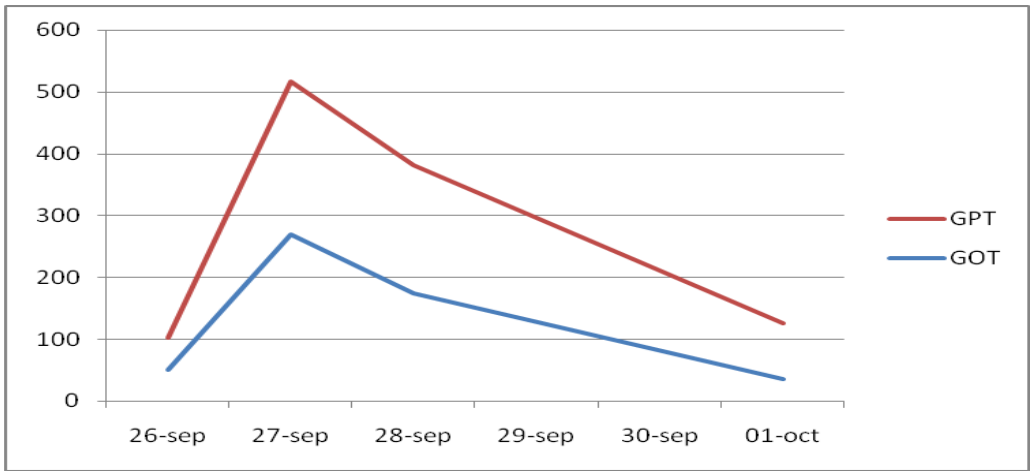

Figure 8: Post-surgical enzyme movement.

The patient presented postoperative complications typical of a cirrhotic patient undergoing surgery, including ascites and grade 2 encephalopathy. The enzymatic movement was reflected in the increase of liver enzymes, reaching its maximum peak up to 48 hours after surgery, beginning to decrease and reaching its normal level on the sixth day after surgery.

As a complication he presented edema of the left lower limb due to deep vein thrombosis caused by an old thrombus fixed in the superficial femoral artery. Based on this, the patient underwent antithrombotic prophylaxis with enoxiparin and later received treatment.

The patient had no infectious complications, was admitted to the general hospital ward, and was discharged 3 weeks after surgery.

Conclusions

The management of cirrhotic patients with HCC should always be by a multidisciplinary team with and in a high complexity center with an active liver transplantation program.

The indication for surgery in these patients will always be an alternative for those with a functional class CHILD A that are out of the possibility of transplantation.

For patients with large and central tumors, the possibility of trans-arterial embolization or oncologic palliative treatment can always be considered.

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