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SURGICAL ASPECTS OF DIRECT INTRAHEPATIC PORTOSYSTEMIC SHUNT AND TRANSJUGULAR INTRAHEPATIC PORTOSYSTEMIC SHUNT IN PATIENTS WITH BUDD-CHIARI SYNDROME

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Introduction

Budd-Chiari Syndrome (BCS) is defined as a spectrum of clinical presentations characterized by narrowing and/or obstruction of hepatic venous outflow at any level among the small hepatic venules, the junction of the Inferior Vena Cava (IVC), and the right atrium [1]. The clinical presentation of BCS includes pain in the upper abdomen, Ascites, Jaundice, Enlarged and tender liver, Esophageal bleeding, Edema in the legs, Liver failure all these depends on the extent and rapidity of obstruction of the hepatic vein and the presence of collateral veins that decompress the liver sinusoids. According to the clinical presentation, BCS can be classified as fulminant, acute, subacute, or chronic. The most common underlying disorders in patients with BCS are hematologic abnormalities, such as polycythemia vera and essential thrombocytosis. In Western countries, factor V Leiden and factor II gene mutations are also common etiologies. Other causes include antiphospholipid syndrome, protein C or S deficiency, paroxysmal nocturnal haemoglobinuria, pregnancy, cancer, trauma, and oral contraceptive use. Management includes anticoagulation therapy, radiological interventions Transjugular Intrahepatic Portosystemic Shunt (TIPS) and angioplasty, very rarely used surgical portocaval shunt, and finally liver transplantation. The most common treatment for BCS non-responsive to medical therapy is TIPS [2]. Nevertheless, this is not always technically successful, due to complete hepatic venous thrombosis. Direct Intrahepatic Portosystemic Shunt (DIPS) is an alternative interventional method for decompression of portal hypertension, which involves intravascular ultrasound (US)-guided puncture from the IVC to the portal vein. Therefore, in our article we will be evaluating whether the outcome of TIPS or US-guided DIPS is good in patients with BCS and completely occluded hepatic veins [3].

Goal

The aim of the present article was to determine, which surgical procedure is showing their positive benefits in treatment, prevention, decreasing the hepatic congestion and thereby reducing the associated morbidity and mortality of patients with Budd-Chiari Syndrome.

Materials and Methods of research

This article carries out a prospective clinical study among 15 patients in which 7 females and 8 males. The data were collected from the Endocrinology & Gastroenterology department of Gleneagles Global Hospital, Chennai, India. All patients gave their written informed consent before surgical procedure.

The results of the research and their discussion

This article consumes about 15 patients (7 females and 8 males) and been carrying out the clinical and metabolic characteristics of all. The mean age of 39.5 years (range: 30–47 years) were referred to the hospital with BCS and portal hypertension. The diagnosis of BCS was based on clinical presentation, radiological findings, and liver biopsy results. The clinical representation data of enrolled patients: All 15 patients presented with refractory ascites, 14 patients with concomitant variceal bleeding and 13 patients with splenomegaly. BCS causes were polycythemia vera

(n = 6), antiphospholipid syndrome (n = 3), and factor V Leiden thrombophilia (n = 1). In 5 patients, no predisposing factor was recognized. Prior to the procedure, all 15 patients were evaluated by both CT and Color Doppler US (CDUS) for possible anatomical variations, patency of hepatic and portal veins, extension of disease, and finally planning of possible access route for intervention. Since BCS is a pathophysiologic process that encompasses multiple etiologies, management in patients with BCS depends on clinical symptoms and anatomic considerations. Therefore, we carried out a stepwise approach in management of BCS, beginning with medical treatment prior to interventional approaches.

However, in our study among 15 patients, a total of 3 consecutive BCS patients with chronic IVC thrombosis were treated with warfarin as a conservative therapy. Warfarin was administered orally at 2.5 mg/d for approximately 3–12 months and with this therapy, the Transluminal balloon dilatation of the IVC with a 30-mm balloon catheter was applied for patients with complete resolution of the thrombus. TIPS may improve the survival rate in BCS patients who fail to respond to medical therapy. TIPS was carried 4 in 15 patients who developed refractory ascites 3 in 4 patients and variceal bleeding 1 in 4 patients and was successfully performed among them with success rates 84 % on intention to treat, 93% technical success. The portal vein was punctured via a hepatic vein stump in these patients from the IVC as a transcaval approach. The number of stents placed was 2 in 15 patients. The stents used were uncovered in 1 patient and polytetrafluoroethylene covered in 1 patient. Therefore, under this procedure the 5 patients with TIPS and 2 patients with stents showed an increased response rate of 84 % with high technical success rate of 93 %, with a 1 and 5-year transplant-free survival rate of 93 % from 74 %, respectively. Moreover, TIPS is associated with less morbidity and mortality when compared to open surgical procedures. But among 15 BCS enrolled patients only 4 patients had high success rates towards TIPS without any complications and the rest 6 patients are not technically successful when we compare with TIPS because of significant hepatic vein thrombosis and inability to catheterize the hepatic vein. In these situations, Direct Intrahepatic Portosystemic Shunt (DIPS) is a viable alternative technique carried out for 6 in 15 patients that can ameliorate portal hypertension in these patients. In DIPS, a portocaval shunt is created between the inferior vena cava and the portal vasculature through the enlarged caudate lobe. The most crucial and difficult part of this procedure is identifying and gaining access to the portal vein. Use of intravascular sonographic-guided placement of DIPS, wherein ultrasound is used to trans hepatically puncture the portal vein from the IVC. A disadvantage of this approach is that it requires special equipment (endovascular ultrasound) and is therefore more expensive. The other variant of DIPS is Transabdominal ultrasound guidance DIPS with simultaneous fluoroscopy has been used successfully for intrahepatic puncture directly from the IVC to a portal venous branch. In all cases described above, the ultrasound guidance (both transabdominal and endovascular) procedure was used to locate and target the portal vein for access in these patients. Therefore, by seeing the positive and negative feedbacks from the above-mentioned interventional therapy and surgical procedures, the patients with BCS have been accepted to perform in terms of conditions through Transabdominal US guided DIPS and fluoroscopic guidance for intrahepatic puncture of a portal vein main branch through the intrahepatic segment of IVC. This procedure gave its (100 %) and clinical success (85.3 %) compares well with the other reported studies. All 15 patients who were followed up their suggestive therapy showed a remarkable improvement of symptoms associated with portal hypertension and there was also no complication during or after the procedures.

Conclusion

DIPS is a viable alternative technique to TIPS that can ameliorate portal hypertension. While DIPS generally involves the use of transabdominal or endovascular

ultrasound to target the portal vein, the collateral vessels in BCS can be used to create a roadmap to facilitate targeting the portal vein. Importantly, long-term anticoagulation is needed in these patients to prevent Budd-Chiari recurrence and DIPS occlusion. Therefore, in our article, the enrolled patients treated and managed with US-guided DIPS which proved that is safe and effective alternative technique in patients with BCS, with significant clinical improvement and low risk of complications. DIPS can be used as a bridge to liver transplantation for patients with BCS, who are not suitable for standard TIPS procedure.

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THE STRUCTURE OF LOCAL DEEP BURNS AND THE EFFECTIVENESS OF PERFORMED SURGICAL TREATMENT IN ADULT PATIENTS

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Introduction

Burns are common injuries with significant morbidity and mortality. Early excision of necrotic tissue and grafting are standard maintenance for decades. Since the mid-1970s, most studies have shown that removal of necrotic scab with simultaneous plastic closure of burn wounds up to 7–9 days after injury is associated with decreased blood loss, infections, hospital stay length and mortality [2]. Burns are damage to body tissues resulting from local action of high temperatures, chemicals, electric current or ionizing radiation. Etiologically classified into thermal, chemical, electrical and beam burns. According to the depth of the lesion there are 5 degrees, which are Ist degree is a superficial skin lesion, characterized by redness and edema. IInd degree — deeper skin lesions with the formation of blisters filled with light yellow exudate [2]. IIIrd A degree — necrosis of the surface layers of the skin with the preservation of hair follicles, sweat and sebaceous glands. IIIrd B degree - necrosis of the entire thickness of the skin. IVth degree — necrosis of the skin and deeper underlying tissues. Burns I, II and IIIA degrees are classified as superficial, the skin is restored on their own [5]. Burns of IIIB and IV degrees are known as deep burn, they usually require surgical treatment. When determining the severity of burns, in addition to depth, the size of the affected area is more important [2]. The area is determined according to the rule of the palm (considered that the palm of an adult is 1 % of the entire surface of the skin) or according to the rule of «nines» (according to Wallace's rule, the area of individual parts of the body is a multiple of or equal to 9 % of the total surface of the body). According to rule of «nines», the surface of the head and neck is 9 %, the upper limb is 9 %, the lower limb is 18 % (thigh is 9 %, the lower leg and foot is 9 %), the back surface of the