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Synchronous right hepatectomy and cesarean section in a pregnant lady with hepatocellular carcinoma

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ABSTRACT

INTRODUCTION: Cancer in pregnancy is rare and hepatocellular carcinoma (HCC) during pregnancy is even rarer. Due to limited experience, management of these patients remains challenging.
PRESENTATION OF CASE: A 33-year old pregnant lady presented with HCC at 28 weeks of gestation. She underwent synchronous cesarean section and right hepatectomy at 32 weeks of gestation. The post-operative course was uneventful. She was discharged home on day 10 after surgery. Histolopathology confirmed HCC. The surgical resection margins were clear. At a follow-up of 3 months after surgery, the mother was disease free and the infant was well.
DISCUSSION: HCC during pregnancy is extremely rare. The experience in its management and outcomes are lacking. In managing any patient diagnosed with a malignant neoplasm in pregnancy, both the mother and the fetus have to be considered.
CONCLUSION: With adequate preoperative assessment and a good management strategy, good results can be obtained for both the mother and the baby for a pregnant patient with HCC.

1. Introduction

Cancer in pregnancy is rare. The commonly quoted incidence, which is based on a 7-year study involving 11,087 cases, is 9.92 cases of cancer per 10,000 pregnancies.[1] HCC during pregnancy is so rare that only less than 50 cases have been reported worldwide. The rarity of HCC presenting during pregnancy is due to a combination of three factors: the male predominance of HCC, rarity of HCC in reproductive age, and decreased fertility in women with advanced cirrhosis.[2,3] HCC in pregnancy is believed to have a worse prognosis than non-pregnant women.[3,4] In the majority of reported cases, pregnancy was terminated when cancer was diagnosed.

We reported a case of HCC in a pregnant lady who received synchronous right hepatectomy and cesarean section with good results to both the mother and the baby.

2. Presentation of case

A 33-year-old female, at the third trimester of pregnancy, was diagnosed to have chronic hepatitis B at a premarital checkup 1 year ago. Regular prenatal examination at 28 weeks pregnancy showed abnormal liver function with a bilirubin level 2.9 μmol/L, alanine amino transaminase (ALT) 71 IU/L and aspartate aminotransferase (AST) 88 IU/L. A subsequent alpha-feto protein (AFP) was 973 μg/L, and ultrasound showed of a huge mass (155 mm × 134 mm) in the right liver. Her hepatitis B status showed HBsAg (+), Anti-HBe (+), Anti-HBc (+), HBV-DNA: 6.29 × 10e4 copies/mL. Magnetic resonance imaging (MRI) scan confirmed a huge lesion in the right liver, 15 cm × 15 cm × 14 cm, showing typical features of HCC and there was another nodule in segment 4 (size, 2.0 cm) showing features of a metastatic lesion from the HCC (Fig. 1).

Ultrasound also showed intrauterine pregnancy with a 30 weeks normal fetus. The estimated weight of the fetus was 1478 ± 216 g. The plan was to carry out a synchronous right hepatectomy and cesarean section when the fetus had reached to an acceptable weight. After two weeks of wait, ultrasound estimated the fetal size to be equivalent to a 31 weeks normal fetus, with an estimated weight of 1713 ± 250 g.

On the date of the operation, the liver function was: total bilirubin, 3.5 μmol/L; albumin, 33.7 g/L; ALT, 58 IU/L; AST, 102 IU/L; alkaline phosphatase(ALP) 97 IU/L and indocyanine green retention rate at 15 min (ICG-R15) 3.4%. Cesarean section was performed at 32 gestational week. A normal male infant with a body weight of 1.8 kg was delivered. This was followed immediately by right hepatectomy using the anterior approach and wedge resection of the segment 4 nodule. No vascular inflow occlusion during liver transection was used. The liver was not cirrhotic. The intraoperative blood loss was 1000 mL. The operation took 260 min. The resected specimens showed a 15 cm tumor in the right liver and a 2.0 cm

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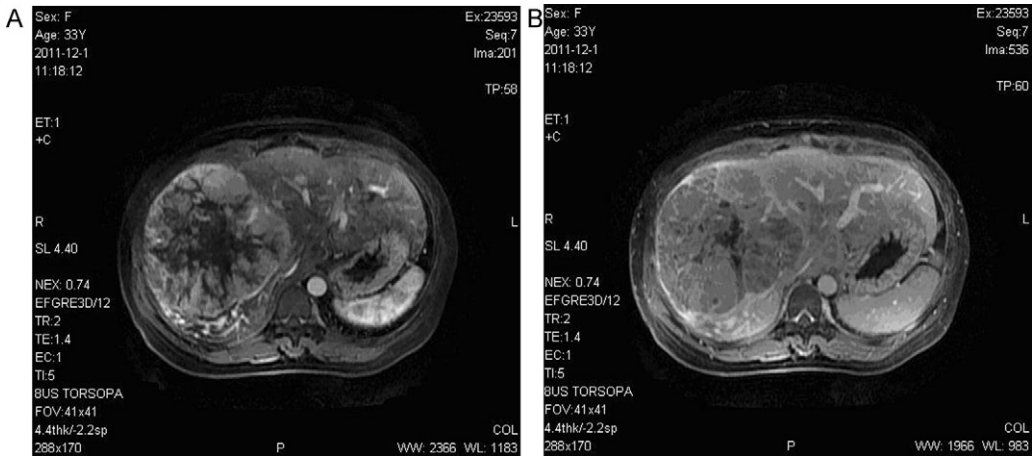

Fig. 1. MRI showed a 15 cm × 15 cm × 14 cm HCC at the right liver with contrast enhancement in the arterial phase (Fig. 1a) and portal venous wash out in the venous phase (Fig. 1b).

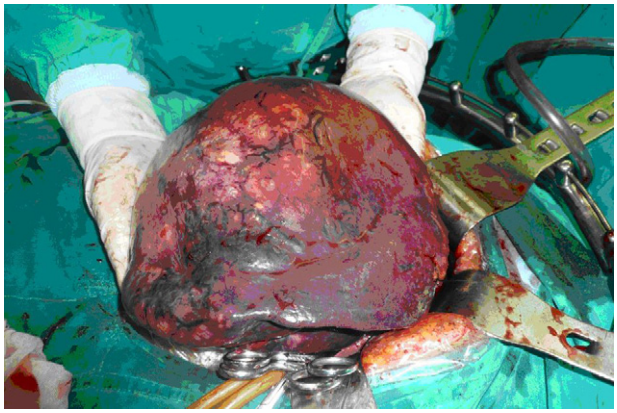

Fig. 2. Intraoperative photograph of the liver tumor.

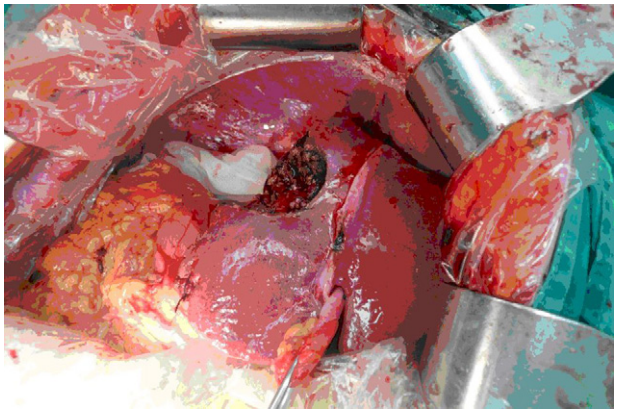

Fig. 3. Liver remnant after right hepatectomy and wedge resection of a segment 4 nodule.

tumor in segment 4 (Figs. 2 and 3). The baby weighted 1.8 kg and he stayed in the neonatal units for 7 days. The post-operative course was uneventful. The patient was discharged home on operative day 10.

Histolopathology showed a moderately differentiated HCC. The segment 4 nodule was a focal nodular hyperplasia (FNH). The surgical margins were clear. Additionally, there was no malignant cell in the placenta or the umbilical cord. Pathological TNM grading of the tumor was $T_1N_0M_0$. 3 months after surgery, she remained disease free. Both mother and infant were well.

3. Discussion

HCC during pregnancy is extremely rare. The experience in its management and outcomes are lacking. In managing any patient diagnosed with a malignant neoplasm in pregnancy, both the mother and the fetus have to be considered. For patients who are in the first trimester of pregnancy, if the tumor is aggressive, therapeutic abortion should be offered so that treatment can be started on the mother as soon as possible. For patients in the second or third trimester, a thorough discussion with the patient on management plan and a multidisciplinary approach among surgeons, obstetricians and radiologists should be adopted. In our patient, the large size of HCC added to the complexity of management. We decided to wait for 4 weeks until it was safe to carry out synchronous cesarean section and right hepatectomy for both the fetus and the mother with good post-operative outcomes.

Pregnancy may have an adverse effect on the prognosis of some tumors, although this is still controversial. A hypothesis puts the blame on elevated levels of sex hormones.[6] In 1995, Lau et al. reported 5 cases and analyzed an additional 23 cases of HCC in pregnancy reported in the literature. Only 3 mothers received liver resection.[4] Live infants were delivered in 57% of cases, but the maternal outcome was grave. Twenty mothers died of various reasons within periods as short as days. Only two patients survived for up to a year after diagnosis. The median survival was shorter than patients who were not pregnant. In 2011, Choi et al. reported 4 cases and analyzed an additional 44 cases of HCC in pregnancy reported in the literature. Only 16 mothers got a chance of liver resection.[5] The overall 6-month and 1-, 2-, and 3-year survival rates were 50, 29.5, 18.2, and 13.6%, respectively. The median survivals of the groups before and during/after 1995 were 18 and 25.5 months, respectively. The morbidity and mortality of HCC during pregnancy has improved over time, as diagnoses tended to be made earlier and patients tended to receive surgical and other treatments.

In conclusion, with adequate preoperative assessment and management, curative treatment is possible in patients with HCC during pregnancy.

Conflict of interest statement

None.

Funding

None.

Ethical approval

Informed consent was obtained from the patient for publication of this case report and accompanying images.

Author contributions

Chen Huan-wei along with Lai Eric C.H. and Lau Wan Yee has done conception and design of the study. Chen Huan-wei and Li Jie-yuan have drafted the manuscript, but Li Jie-yuan teamed with Huang Pei-qing and Chen Ru-fang to endeavour data acquisition. Finally, Lai Eric C.H. and Lau Wan Yee have revised the manuscript.

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