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Hepatocellular carcinoma during pregnancy: case report and review of the literature

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Abstract

Hepatocellular carcinoma (HCC) during pregnancy is very rare with poor prognosis. We report a case of a HCC in a 33-year-old, pregnant female with an otherwise normal liver and no risk factors, diagnosed by routine prenatal ultrasound scan and elevated alpha-feto protein levels. She underwent a synchronous caesarean section and liver resection at 30 weeks of gestation with good perioperative outcome and no recurrent disease at 1-year follow-up. This case report discusses the clinical presentations, diagnostic and therapeutic strategies and literature review of this rare presentation.

Hepatocellular carcinoma (HCC) has a distribution that typically follows the prevalence of the hepatitis B and C viruses. As a consequence a third of cases are found in China and another third in the rest of Asia.[1]

In New Zealand, rates of HCC for Māori and Pacific people were 7.3 and 18.0 times that for other ethnicities.[2] HCC in pregnancy is extremely rare, especially if viral hepatitis negative.

We present a case of HCC diagnosed in pregnancy in a young New Zealand Māori woman in an otherwise normal liver. This case highlights the difficulty in diagnosis preoperatively, and timing of surgery in the presence of a viable fetus.

Case report

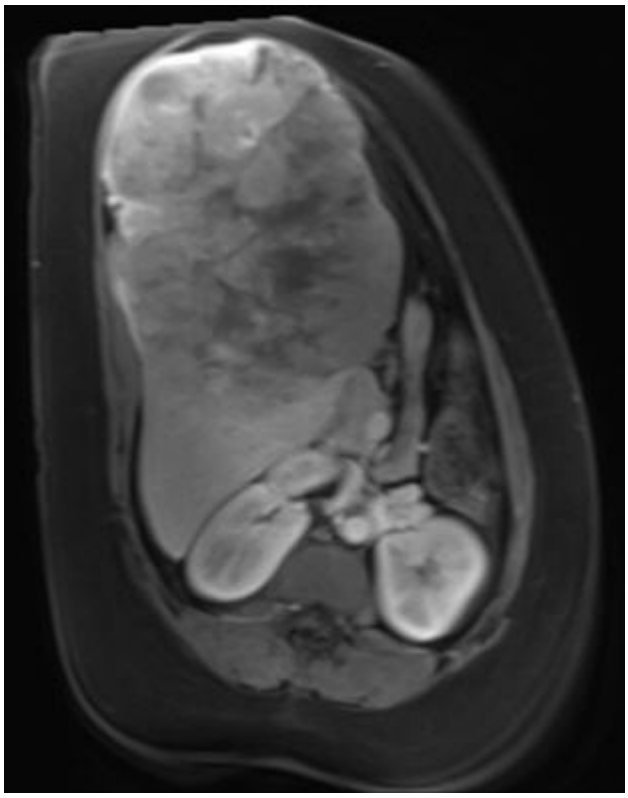
A 33-year-old, gravida eight para four, Māori woman, had a liver mass detected on routine prenatal ultrasound scan at 20 weeks gestation. Her alpha feto protein level was 295 and hepatitis screen was negative. She had no history of oral contraceptive (OCP) use.

She underwent an MRI scan (Figure 1) which showed a large (24 cm) lobulated, heterogenous mass centred in segments IVB and V with areas of restricted diffusion, and heterogenous enhancement including areas of arterial phase enhancement which showed washout on the venous phases and areas of delayed enhancement.

Given the clinical setting and MRI appearances, the lesion was thought most likely to represent a liver cell adenoma (LCA) or HCC. Biopsy was deemed to be inappropriate as it was unlikely to yield a definite diagnosis and carried an undue risk of rupture.

The patient was admitted at 30 weeks gestation for lower segment caesarean section and simultaneous resection of the hepatic mass. Laparotomy revealed a large, lobulated liver tumour from segments IV, V and VI (Figure 2). The lesion was successfully resected with good haemostasis and no bile leak.

Figure 1. Portal venous phase post contrast T1 fat saturated (VIBE) image showing liver mass. The patient was scanned on her side which explains the contour of her abdomen



Macroscopically, the tumour had a thick pseudocapsule, it measured 290 × 180 × 140 mm and weighed 3.7 kg (Figure 2). Microscopic examination showed a poorly differentiated HCC (Figure 3). There were sheets or trabeculae of tumour cells with fibrovascular stroma, focal haemorrhage and necrosis.

The tumour cells had clear, foamy to eosinophilic cytoplasm. Some had bizarre multilobated nuclei, and mitotic figures were frequently seen. There was vascular space invasion, but the resection margins were clear. Immunohistochemically the tumour cells were moderately positive for HepPar1, and showed a canalicular staining pattern for CD10. The uninvolved liver showed no evidence of cirrhosis, chronic hepatitis, or other underlying abnormalities.

Figure 2. Intraoperative image of resected hepatic tumour

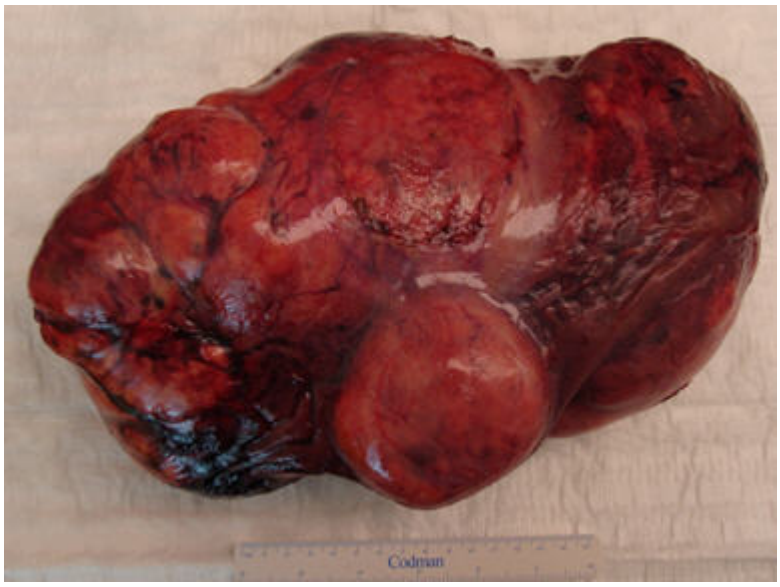
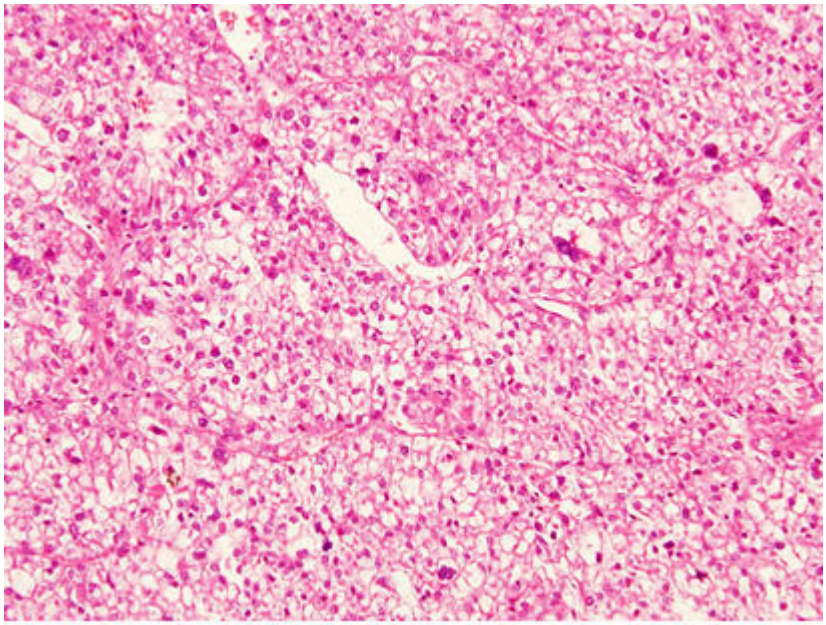


Figure 3. Microscopic examination showing features consistent with poorly differentiated hepatocellular carcinoma (details in text)



Postoperatively the patient had a CT chest and abdomen which showed no residual HCC. There was no indication for further chemotherapy or radiotherapy. There was no evidence of recurrent disease at 1-year follow up.

Discussion

Hepatocellular carcinoma is uncommon in pregnancy. This is partly because cirrhosis, which predisposes to HCC, is associated with infertility. However, oral contraceptives, early menarche, late menopause and increasing parity have all been shown to contribute a small risk to HCC development, suggesting oestrogens play an important role. There are also several case reports of LCA transformation into HCC years after cessation of OCP use.[3]

With the scarcity of cases it is difficult to quantify the effects and risks of pregnancy, specifically rupture, accelerated growth and a poorer prognosis. However, worse outcomes in pregnant women with HCC were noted in the literature. One review quoted only three of 29 patients surviving 12 months or more and live infants being delivered in only 57% of cases.[4] Another case study followed an HCC over time and noted acceleration of growth during the pregnancy.[5]

A 2011 retrospective review of all 47 case studies worldwide of HCC in pregnancy showed poor but improving survival rates over time (median survivals of the groups before and during/after 1995 were 18 and 25.5 months, respectively).[6] Improving survival is due to both earlier diagnosis and surgical intervention.[6] This need for early imaging and resection poses an obvious challenge in pregnancy.

Management has traditionally focused on termination due to the adverse effects of pregnancy on the tumour, followed by resection. This is often undesirable, such as the present case, where a diagnosis was not made until 20 weeks gestation.

Resection is undoubtedly the gold standard of management if possible. However this must be weighed with risks to the fetus of early delivery. Unfortunately there are no clear guidelines on timing of resection due to the rarity of the condition and patient variables. Adjunctive measures such as steroids for fetal lung maturation are recommended to allow earlier delivery.

We report on an interesting and rare case of a hepatocellular carcinoma in a young, pregnant female with an otherwise normal liver. This case highlights the difficulty in making a diagnosis based solely on imaging. Even in a patient with no known risk factors, early resection remains the gold standard for management if it is unclear whether the mass is an HCC or LCA.

Timing of delivery and resection must be balanced between fetal maturation and increasing risks of rupture and tumour development and taken on an individual basis.

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