

# Case Report

## Recurrent Skull Metastasis of Hepatocellular Carcinoma at 2 Month Post Operation

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Several cases with skull metastases hepatocellular carcinoma have so far been reported in the English literature. However, recurrent skull metastasis hepatocellular carcinoma at 2 month post operation after craniectomy and total tumor removal has never been published. We reported a 57-year-old Thai female presented with a recurrent enlarging painless left parieto-occipital skull mass after 2 month post operation which confirmed by Cranial computerized tomography (CT). This case showed that the skull metastases of hepatocellular carcinoma can rapidly recur although closely monitored by clinical evaluation, laboratory and radiological finding had been done.

**Keywords:** Skull metastases, Hepatocellular carcinoma

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Hepatocellular carcinoma(HCC) is one of the most prevalent cancer in Asia but skull metastasis from HCC occurs rarely[1-4]. The reported incidence so far ranges from 0.4%-1.6%<sup>(1,5)</sup>. We reported a patient harboring a recurrent epidural tumor at the same site after craniectomy and total tumor was removed and reviewed the English literature for reports of a hepatocellular carcinoma presenting with skull invasion.

### Case Report

A 57-year-old Thai female presented with a recurrent enlarging painless right parieto-occipital scalp mass. Two months before admission, the patient had chronic headache, an enlarging scalp mass, left hemiparesis. Family history of hepatitis, hepatocellular carcinoma or malignancy was denied. Physical examination revealed no cushing response. Multiple protruding painless masses at Left parieto-occipital area were notes. Splenomegaly was palpated. On neurological examination, her mental status was drowsiness, papilledema was seen, and motor power was left hemiparesis (grade IV). The serum alpha feto-

protein and HbsAg was positive. Chest x-rays was normal. Cranial computerized tomography(CT) demonstrated a left parieto-occipital epidural mass, iso-hyper density mass 8 x 7 x 4 cm invaded through skull. Nevertheless, there was another hyperdensity intraparenchymal mass, 1 x 2 x 2 cm at same site with midline shift 5 mm. After contrast enhancement of intravenous gadolinium, there was heterogeneous enhancing mass with leptomeningeal enhancement. After admission she had unconsciousness. A left craniectomy was performed and the tumor was removed en bloc.

Macroscopically (Fig. 1), a reddish-brown, friable, highly vascular, well-demarcated mass was observed adherent to dura surface of parieto-occipital area. The underlying dura was intact. The mass invaded



**Fig. 1** Illustration showed epidural tumor invaded skull on preoperative CT scan(left) and macroscopically (Right), a reddish-brown, friable, highly vascular, well-demarcated mass.

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through the diploic space and both tables of skull. The tumor was removed en bloc. The another intra-axial mass was seen and also totally removed. In the immediate post-operative period, she had been good consciousness and motor power was improved.

Microscopically (Fig. 2), show infiltrating tumor into destructed bone and dura fibrous tissue of skull. The tumor is typical well differentiated hepatocellular carcinoma with extensive tumor necrosis and hemorrhage. Trabecular infiltrating pattern is noted with thick plates of neoplastic liver cells. These hepatocytes are polygonal with abundant eosinophilic granular cytoplasm and distinct cell membrane. Nuclei are significantly enlarged with prominent nucleoli. Vascular tumor emboli are focally present.

Abdominal computerized tomography scan (after skull tissue diagnostic) showed liver cirrhosis with splenomegaly, multiple nodules throughout the liver consistent with hepatocellular carcinoma, left portal vein thrombosis and small amount of ascites at perihepatic region.

At 1 month post operation, following the intravenous administration of doxorubicin 50 mg, no scalp tumor was seen.

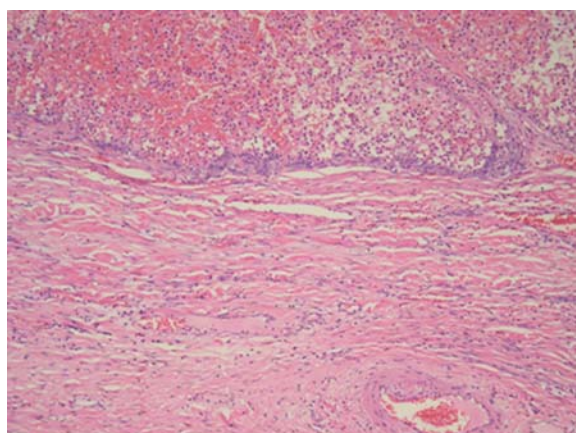
At 2 month post operation, another dose of doxorubicin was given and scalp tumor was seen. The patient had neutropenia (wbc 2,100). Laboratory investigations demonstrated abnormal liver function (total protein 6.9 (6-8.5) g/dl, total bilirubin 5.2 (0-1) mg/dl, direct bilirubin 3.8 (0-0.4) mg/dl, AST211 (0-31) U/L,

ALT67 (0-31) U/L, ALK236 (35-104) U/L. Cranial computerized tomography (CT) (Fig. 3) demonstrated a recurrent tumor at the same site. Our patient was planned to palliative treatment because her status was not well.

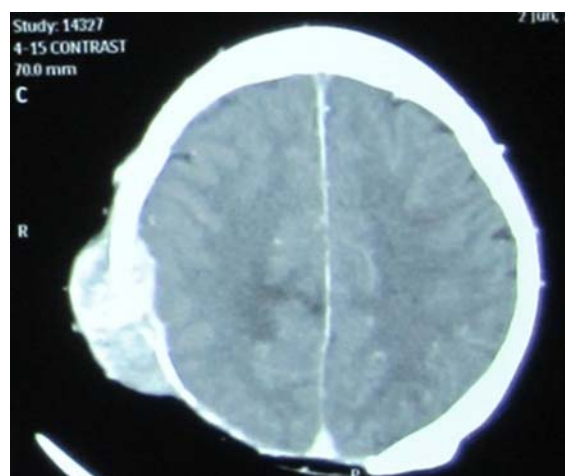
## Discussion

In Thailand where HCC is a common disease however metastatic HCC to the skull has never been reported so far. We reported the first skull metastasis hepatocellular carcinoma patient presenting with recurrent skull tumor at 2 month post operation which craniectomy and total tumor removal was done but the tumor have still been recurred. Metastases in the central nervous system from HCC generally occur through two different pathways in the advanced stage<sup>(1,3-5)</sup>. We though that metastases in this case was the osseous route via Batson's venous plexus to the skull by cancer cell might disseminate within the dipole via the diploic venous channels and expand through the inner and outer table of the skull. HCC is characterized as an osteophilic cancer. The another route is the hematogenous route via the lung to the brain parenchyma without skull involvement as well as the lung is the most common site of extracranial metastases. This character of HCC is defined as a neurophilic cancer. Therefore, the patient should be closely monitored eventhough craniectomy and total tumor removal had already been done.

Several treatment options can treat the skull



**Fig. 2** Microscopically, show infiltrating tumor into destructed bone and dura fibrous tissue of skull. The tumor is typical well differentiated hepatocellular carcinoma with extensive tumor necrosis and hemorrhage.



**Fig. 3** Cranial computerized tomography (CT) demonstrated a recurrent tumor at the same site after craniectomy.

metastases from HCC, including chemotherapy, radiotherapy, surgical resection and palliative treatment<sup>(5)</sup>. Many previous reports claim that most patients with skull metastases died because of liver failure and surgical resection of the metastatic lesion could not prolong survival<sup>(5)</sup>. While the definite treatment of skull metastases from HCC is unknown, our patient treatment with 2 courses of doxorubicin 50 mg intravenous post-surgery was given. However the tumor has still been recurred.

### Conclusion

Recurrent tumor can occur within 2 month post operation although closely monitored by clinical evaluation, laboratory and radiological finding had been done.

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## รายงานกรณีศึกษาผู้ป่วยมะเร็งตับแพร่กระจายไปที่กะโหลกศีรษะซ้ำหลังการผ่าตัด 2 เดือน

เสรี เสน่ห์ลักษณ์, ศรีญญา อูราธรรมกุล

จากการทบทวนวารสารทางการแพทย์ทั่วโลก พบว่ามีรายงานผู้ป่วยที่เป็นกรณีศึกษามะเร็งตับแพร่กระจายไปยังกะโหลกศีรษะหลายราย อย่างไรก็ตามยังไม่พบรายงานการกลับเป็นซ้ำที่กะโหลกศีรษะหลังการผ่าตัดเอาเนื้อร้ายที่กะโหลกออกแล้วเป็นเวลา 2 เดือน ในวารสารฉบับนี้ได้รายงานกรณีศึกษา ผู้ป่วยหญิงไทย อายุ 57 ปี มีอาการกลับเป็นซ้ำของก้อนบริเวณกะโหลกศีรษะอย่างรวดเร็ว ทั้งที่ได้รับการติดตามอย่างใกล้ชิดโดยใช้การประเมินอาการทางคลินิก, ทางห้องปฏิบัติการ และรังสีวินิจฉัย.

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