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Case Report

Transarterial chemoembolization as the primary treatment for a super-giant hepatic hemangioma [☆]

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ABSTRACT

Hepatic hemangiomas are common benign liver tumors. While the majority are small and require no treatment, giant hemangiomas are characterized as measuring greater than 4–6 cm in size and may require intervention. Surgical resection and enucleation have been described historically as the treatment for giant hemangiomas requiring intervention. Additionally, limited data exists about the treatment of hemangiomas measuring greater than 20 cm, particularly in regards to transarterial chemoembolization. We present a case of a super-giant hemangioma measuring greater than 20 cm treated with transarterial chemoembolization alone.

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Introduction

Hemangiomas are benign lesions consisting of large vascular spaces lined by a single layer of endothelial cells. They account for approximately 73% of all benign liver tumors with a prevalence of 0.4%–7.3% at autopsy [1]. Most hemangiomas are small and asymptomatic, but nearly 20% of hepatic hemangiomas are greater than 5 cm and can be symptomatic requiring treatment [2]. Indications for treatment are typically rupture, intratumoral bleeding, Kasabach-Merritt syndrome, pain despite analgesics, compression on adjacent organs or vessels, or other complications.

Surgical resection and enucleation have been traditionally considered the primary method for treatment of giant heman-

giomas (hemangiomas greater than 4–6 cm in size); however, it carries a high risk of complications, with the morbidity as high as 21%–27% [3]. There is limited data about the management of hemangiomas greater than 20 cm, particularly the role of transarterial chemoembolization (TACE). We present a case of a super-giant hemangioma measuring greater than 20 cm that was treated with TACE alone with approximately 90% reduction in tumor size and volume.

Case report

A 42-year-old female with no significant past medical history presented with an enlarging giant hepatic hemangioma,

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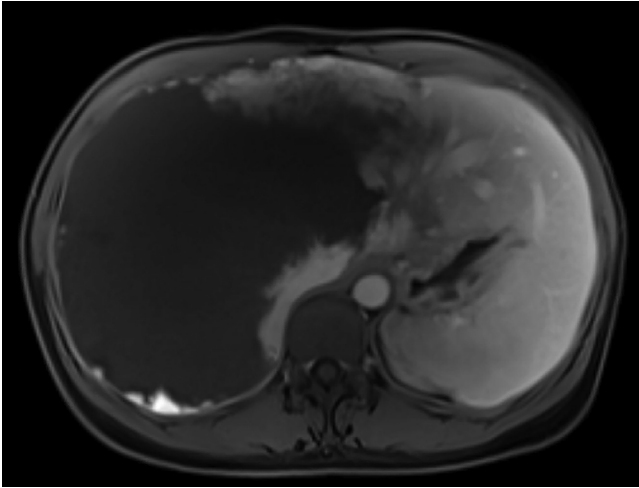


Fig. 1 – Preprocedural axial T1-weighted contrast-enhanced MR demonstrates large hemangioma centered within the right hepatic lobe.

incidentally discovered during an abdominal ultrasound 9 years earlier. Further evaluation with MRI confirmed the mass to have characteristics most consistent with a giant hemangioma. The patient continued to remain asymptomatic; however, over several years the hemangioma continued to increase in size. It eventually grew from an initial size of $10 \times 10 \times 9$ cm to $16 \times 15 \times 20$ cm, replacing the entire right hepatic lobe and resulting in marked mass effect on inferior vena cava (IVC) (Fig. 1).

Due to concern of eventual compromise of the IVC, an elective 2-step staged TACE of the hemangioma was performed one month apart. The first TACE was performed with 30 International Units (IU) of bleomycin mixed with 10 mL of nor-

mal saline and 10 mL of lipiodol. The next treatment was performed one month later with the same mixture of bleomycin and lipiodol followed by a 3% Sodium tetradecyl sulfate (STS) foam made using a combination of agents with a 3:2:1 ratio of room air: 3% STS: lipiodol respectively (Fig. 2). The patient was admitted for overnight observation after each procedure. There were no immediate or delayed post procedure complications or adverse events.

Patient was seen in clinic approximately 15 months after the second embolization. She reported no pain or nausea after the procedures. The follow-up MRI demonstrated interval decrease in size of the right hepatic lobe giant hemangioma. At that time, it measured $7 \times 8 \times 7$ cm, with decreased mass effect upon the inferior vena cava and 90% reduction in volume (Fig. 3). Per the recommendation of the institution's multidisciplinary tumor board, the patient will be followed with year MRIs for at least 5 years to document stability.

Discussion

While the vast majority of hepatic hemangiomas are asymptomatic and require no treatment, we present a case of a giant hepatic hemangioma measuring greater than 20 cm treated effectively with TACE alone. TACE has been shown to be safe and effective treatment for hemangiomas. A meta-analysis of 21 studies comprising 1450 patients treated with transarterial embolization demonstrated a mean pre and post diameter of 9.8 ± 2.6 cm and 6.0 ± 1.4 cm respectively with lipiodol based treatment showing significant reduction in hemangioma size compared to polyvinyl alcohol (PVA) based treatments [4]. Similarly, Li et al. performed a retrospective analysis of 836 patients with symptomatic hepatic hemangiomas treated with TACE with lipiodol-pingyangmycin



Fig. 2 – Selective arteriogram of the right hepatic artery demonstrates a large hypervascular mass occupying almost the totality of the right hepatic lobe (A). Postembolization images from the second procedure show decreased flow through the right hepatic artery and decreased vascular supply to the mass (B).

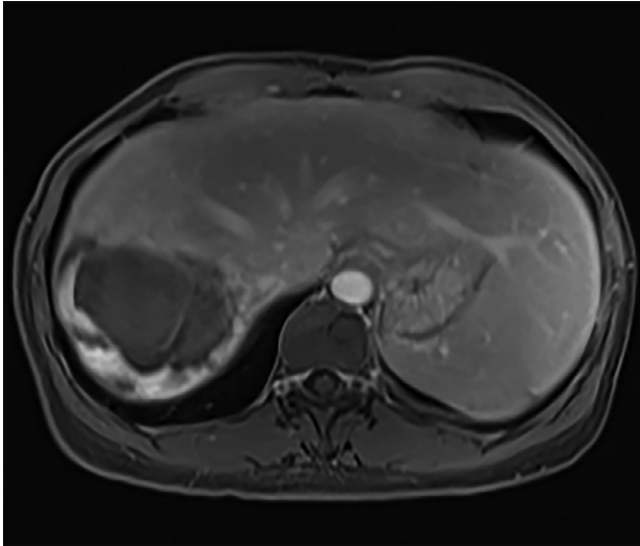


Fig. 3 – T1-weighted contrast-enhanced MR 15 months following second embolization procedure shows significantly decreased size of the hemangioma centered within the right hepatic lobe.

emulsion and found a 100% symptom relief rate and mean reduction in diameters of the hemangiomas from 9.6 +/- 0.8 cm to 3.6 +/- 0.5 cm [3]. We performed the TACE with lipiodol-bleomycin emulsion instead of lipiodol-pingyangmycin since the latter is not available in the United States.

Based on our knowledge, only Jiang et al. reported a retrospective analysis of 14 patients with hemangiomas measuring greater than 20 cm treated with either surgical resection or enucleation with 3/14 (21%) of these patients requiring blood transfusions and 3/14 (21%) having postoperative complications including lung infection and abdominal serous fluid collections [5]. In their study, postoperative hospital stays ranged from 6 to 14 days [5]. Our patient had a decrease in size of the largest diameter of the hemangioma from 20.4 cm to 8.5 cm (decrease by 58.3%), required no blood transfusions, and had a hospital stay of only one day.

Conclusion

We present this case in order to further illustrate a minimally invasive treatment modality for even super-giant hemangiomas that is associated with minimal hospital stay and likely reduced risk of major complications compared to surgical treatment options. We believe that further research could be done to improve the evidence that transarterial chemoembolization is a safe and effective treatment for large giant hemangiomas.

Patient consent

Informed consent was obtained from all individual participants included in the study. No patient identifiers are disclosed.

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