

## CASE REPORT

# HDlive Flow Silhouette with Glass-body Rendering Mode for Diagnosis of Tubal Serous Borderline Tumor

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## ABSTRACT

The primary tubal serous borderline tumor is a very rare neoplasm of the fallopian tube. We present a case of the tubal serous borderline tumor diagnosed using the HDlive Flow silhouette with the glass-body rendering mode. Two-dimensional sonography showed a left-sided sausage-shaped cyst with low-level echoes and several mural papillae. Radiant Flow demonstrated a few penetrating intratumoral blood vessels within papillary projections. HDlive depicted a typical torturous shape of the left hydrosalpinx and several irregular papillae. The HDlive Flow silhouette with the glass-body rendering mode clearly showed numerous penetrating vessels at the base of irregular papillary projections. These findings suggest borderline tumor of the left fallopian tube. The HDlive Flow silhouette with the glass-body rendering mode provides an additional diagnostic clue for the preoperative diagnosis of a serous borderline tumor of the fallopian tube.

**Keywords:** Fallopian tube, Glass-body rendering mode, HDlive flow silhouette, Radiant flow, Serous borderline tumor.

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## INTRODUCTION

There have been some studies on three-dimensional (3D) ultrasound and 3D power Doppler diagnosis of fallopian tube carcinoma.<sup>1,2</sup> However, a serous borderline tumor of the fallopian tube is a very rare entity, and it is usually in its early stage at diagnosis.<sup>3</sup> There has been only one report on preoperative two-dimensional (2D) sonographic and color Doppler findings of the tubal serous borderline tumor.<sup>4</sup> These features were the presence of a cystic mass with low-level echoes and mural papillae with blood flow in the context of normal-appearing ovaries. However, to the best of our knowledge, there has been no study on 3D ultrasound and 3D power Doppler diagnosis of the tubal serous borderline tumor. Here, we present a case of the tubal serous borderline tumor diagnosed using radiant flow, HDlive, and HDlive Flow silhouette with the glass-body rendering mode.

## CASE DESCRIPTION

A 76-year-old Japanese woman, gravida 1, para 1, was referred to our ultrasound clinic because of a left hydrosalpinx. Routine laboratory findings were unremarkable. 2D sonography (Voluson E10, GE Healthcare Japan, Tokyo, Japan) showed a left-sided sausage-shaped cyst (79 × 57 × 32 mm) with low-level echoes and several mural papillae (Fig. 1). The Radiant Flow demonstrated a few penetrating intratumoral blood vessels within papillary projections (Fig. 2). HDlive depicted a typical torturous shape of the left hydrosalpinx and some irregular papillae (Fig. 3). The HDlive Flow silhouette with the glass-body rendering mode clearly showed numerous penetrating vessels at the base of irregular papillary projections (Fig. 4). These findings suggest borderline tumor of the left fallopian tube.

Frozen section of the left tubal tumor during the operation showed no malignancy, and the cytologic result of ascites was negative. So, total abdominal hysterectomy and bilateral salpingo-oophorectomy were conducted. The postoperative histopathologic diagnosis was a serous borderline tumor of the left fallopian tube, stage 1A. No further treatment was conducted.

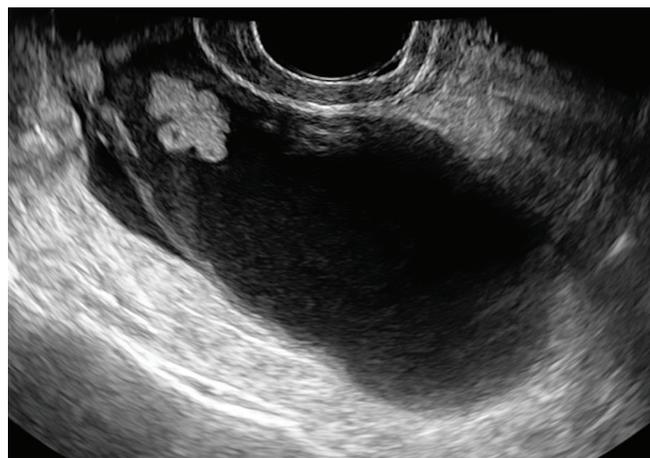
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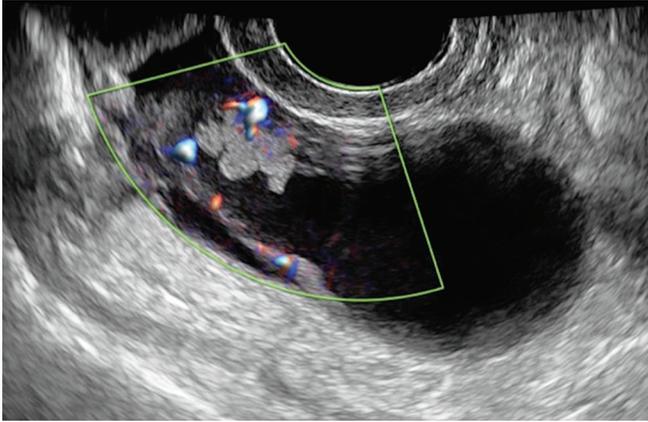
**Conflict of interest:** None



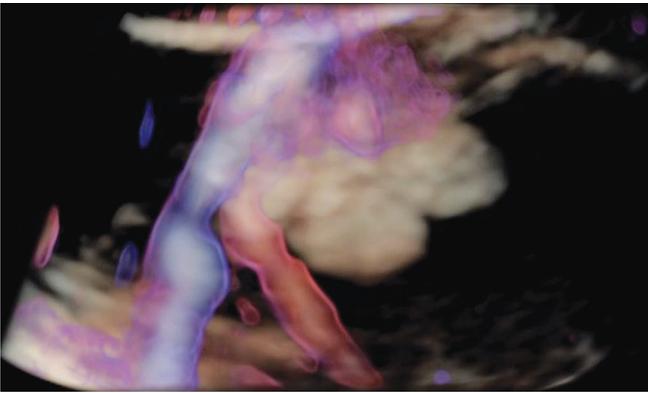
**Fig. 1:** Two-dimensional (2D) sonographic image of serous borderline tumor of the left fallopian tube. 2D sonography shows a sausage-shaped cyst with low-level echoes and mural papillary projections

## DISCUSSION

The pathologic features of the tubal serous borderline tumor are similar to those of borderline ovarian serous tumors.<sup>5</sup> The most frequent 2D sonographic feature on imaging borderline

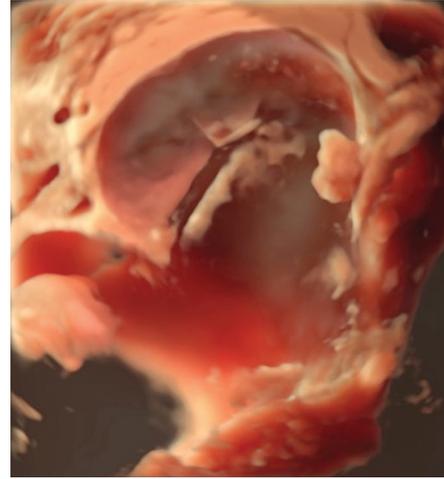


**Fig. 2:** Radiant Flow image of serous borderline tumor of the left fallopian tube. Radiant Flow shows a few penetrating intratumoral blood vessels within papillary projections



**Fig. 4:** HDlive Flow silhouette with glass-body rendering mode image of serous borderline tumor of the left fallopian tube. HDlive Flow silhouette with the glass-body rendering mode clearly shows numerous penetrating vessels at the base of irregular papillary projections

ovarian tumor is the presence of papillae within the cyst.<sup>6</sup> This 2D sonographic finding is also almost the same as that of the tubal serous borderline tumor.<sup>4</sup> In the borderline ovarian tumor, 3D HDlive proved to be useful for clearly viewing the irregular papillary projections within the cyst and the extent of these projections.<sup>7</sup> However, there has been no study on HDlive or HDlive Flow silhouette features of the tubal serous borderline tumor. In our case, HDlive demonstrated a typical torturous shape of the left hydrosalpinx and several irregular papillae inside the tumor. This HDlive finding is also almost the same as that of the tubal serous borderline tumor.<sup>7</sup> The HDlive Flow silhouette with the glass-body rendering mode clearly showed numerous penetrating vessels at



**Fig. 3:** HDlive image of serous borderline tumor of the left fallopian tube. HDlive depicts a typical torturous shape of the hydrosalpinx and several irregular papillae

the base of irregular papillary projections. This feature is another unique characteristic of serous borderline tumor of the fallopian tube. The HDlive Flow silhouette with the glass-body rendering mode provides both a 3D image and 3D reconstruction of tumor vascularity. This technique may become an additional diagnostic clue for the preoperative diagnosis of a serous borderline tumor of the fallopian tube.

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