## Supplemental data

## Methods

*Imaging examinations*. All MRI scans were performed using a GE 1.5 SignaTwinSpeed magnetic resonance scanner (GE Healthcare).

*Conventional MRI scan*. The patient was examined using a body coil for excitation and head phased array coil for reception. A fast spin-echo (FSE) T2WI was applied with the following parameters: Repetition time/echo time (TR/TE), 4,300/110 msec; echo train length, 20; slice thickness/gap, 6/2 mm; field of view (FOV), 24x24 cm; number of excitations (NEX), 2; matrix, 320x256. The parameters for T1WI were as follows: TR/TE, 1,750/30 msec; slice thickness/gap, 6/2 mm, FOV, 24x24 cm; NEX, 2; matrix, 256x192.

*Contrast-enhanced MRI*. Contrast-enhanced MRI was applied with the following parameters: TR, 4.9-5.4 msec; TE, 2.5-2.7 msec; 12˚ flip angle. Two images were acquired before, and five images after the injection of contrast media, 0.2 ml/kg gadopentetate dimeglumine (MagneVist®; Bayer Healthcare) at an injection rate of 2 ml/sec followed by a 20-ml saline solution flush at a rate of 2 ml/sec.

*3D 1H-MRS scan*. The patient was scanned using FSE T2WI with a body coil line. 3D 1H-MRS examination was performed using PROSE sequence (TR/TE, 1,000/144 msec; FOV, 24x24 cm; NEX, 1; matrix, 9x9; total scan time, 5 min 28 sec).

*Histopathological staining*. The tumor was fixed with 4% neutral formalin at room temperature overnight. The formalin-fixed tissue was processed, embedded in paraffin and cut at 4 $\mu$m in thickness. Tissue sections were stained with hematoxylin and eosin at room temperature for 60 min. The pathological tissue slice was observed under an optical microscope (Olympus BX53; Olympus Corporation).

*Immunohistochemistry (IHC)*. For IHC staining, 4-$\mu$m sections of formalin-fixed, paraffin-embedded tissue were placed on positively charged slides and allowed to dry. Following the removal of paraffin, endogenous peroxidase activity was quenched with hydrogen peroxide in methanol, after which the sections were hydrated with water. The tissue sections were then stained for CD34 (prediluted by the manufacturer; cat. no. ZM-0039), vimentin (prediluted by the manufacturer; cat. no. Kit-0004), STAT6 (prediluted by the manufacturer; cat. no. RMA-0845), Ki-67 (prediluted by the manufacturer; cat. no. MAB-0672), EMA (prediluted by the manufacturer; cat. no. Kit-0011), PR (prediluted by the manufacturer; cat. no. Kit-0013) (all Fuzhou Maixin Biotechnology Co., Ltd.). The secondary antibody was from the Maxvision™2 HRP-Polymer anti-Mouse/Rabbit IHC Kit (prediluted by the manufacturer, cat. no. KIT-5930) and a mild counterstaining of the nuclei was applied using hematoxylin (cat. no. CTS-1091) (all Fuzhou Maixin Biotechnology Co., Ltd.). Images were captured using an optical microscope (Olympus BX53; Olympus Corporation).

Figure S1. Intraoperative tumor image and immunohistochemical features of the tumor. (A) During the operation, the tumor was gray and red in color with an abundant blood supply. White arrows indicate the tumor. Immunohistochemical examination demonstrated that (B) EMA was weakly expressed and (C) PR was not expressed (magnification, x400; scale bar, 25 $\mu$m). A brown color in the cells indicated positive staining for EMA. EMA, epithelial membrane antigen; PR, progesterone receptor.