

Robotic-Assisted Thoracoscopic Resection of Thoracic Endometriosis for Catamenial Pneumothorax

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BACKGROUND

Catamenial pneumothorax is a rare entity, comprising only 3-6% of all spontaneous pneumothorax (SP) cases in menstruating females. Patients typically present with SP within a 72-hour period prior to, or immediately after, the onset of menses. Proposed mechanisms include migration of endometrial cells eroding transdiaphragmatically into the pleural space; hematogenous or lymphatic spread of endometrial cells into the pleural surfaces; increased prostaglandin levels resulting in bronchial arterial vasoconstriction, and intrauterine and intraperitoneal air migration through diaphragmatic fenestrations. We describe a robotic-assisted thoracoscopic technique for repair of this unusual condition.

METHODS

A 47 year-old female never-smoker with a history of asthma was admitted for a recurrent right SP requiring repeat chest tube placement. She initially presented to the Emergency Department three days after the onset of menstruation. Computerized tomography (CT) demonstrated a 3 cm nodule at the right diaphragmatic surface consistent with either a diaphragmatic tumor or focal herniated liver. She was already being treated with leuprolide by her gynecologist for a prior diagnosis of endometriosis. She was taken to the operating room for robotic-assisted thoracoscopic resection of thoracic endometriosis.

RESULTS

Multiple diaphragmatic fenestrations were found within the central tendon, along with visible herniated liver through the largest defect. These were resected en bloc and the diaphragm was repaired and plicated. Polyglactin mesh was then placed as a diaphragmatic overlay and secured circumferentially. The patient recovered uneventfully and was discharged home on postoperative day six. Three months later she underwent laparoscopic hysterectomy and resection of pelvic endometriosis implants. She remains well two years later.

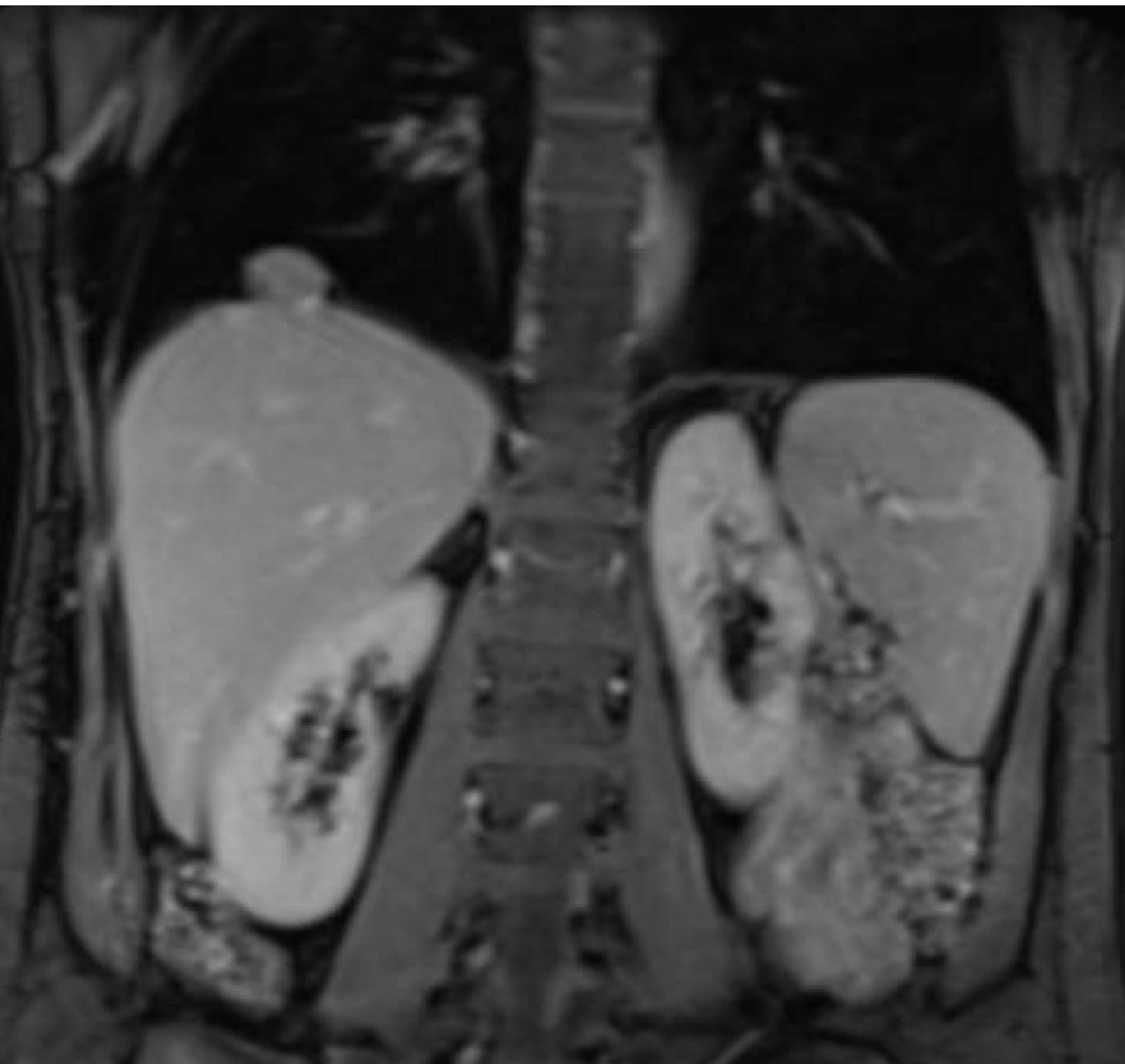
CONCLUSIONS

A high index of suspicion is required when caring for female menstruating patients presenting with SP. Although rare, the diagnosis of catamenial pneumothorax should be considered in the differential diagnosis when the patient presents within 72 hours of the onset of menses. A multidisciplinary approach involving the gynecologic, pulmonary and thoracic surgical services is essential in order to appropriately treat this unusual disease and prevent recurrence.

INITIAL IMAGING

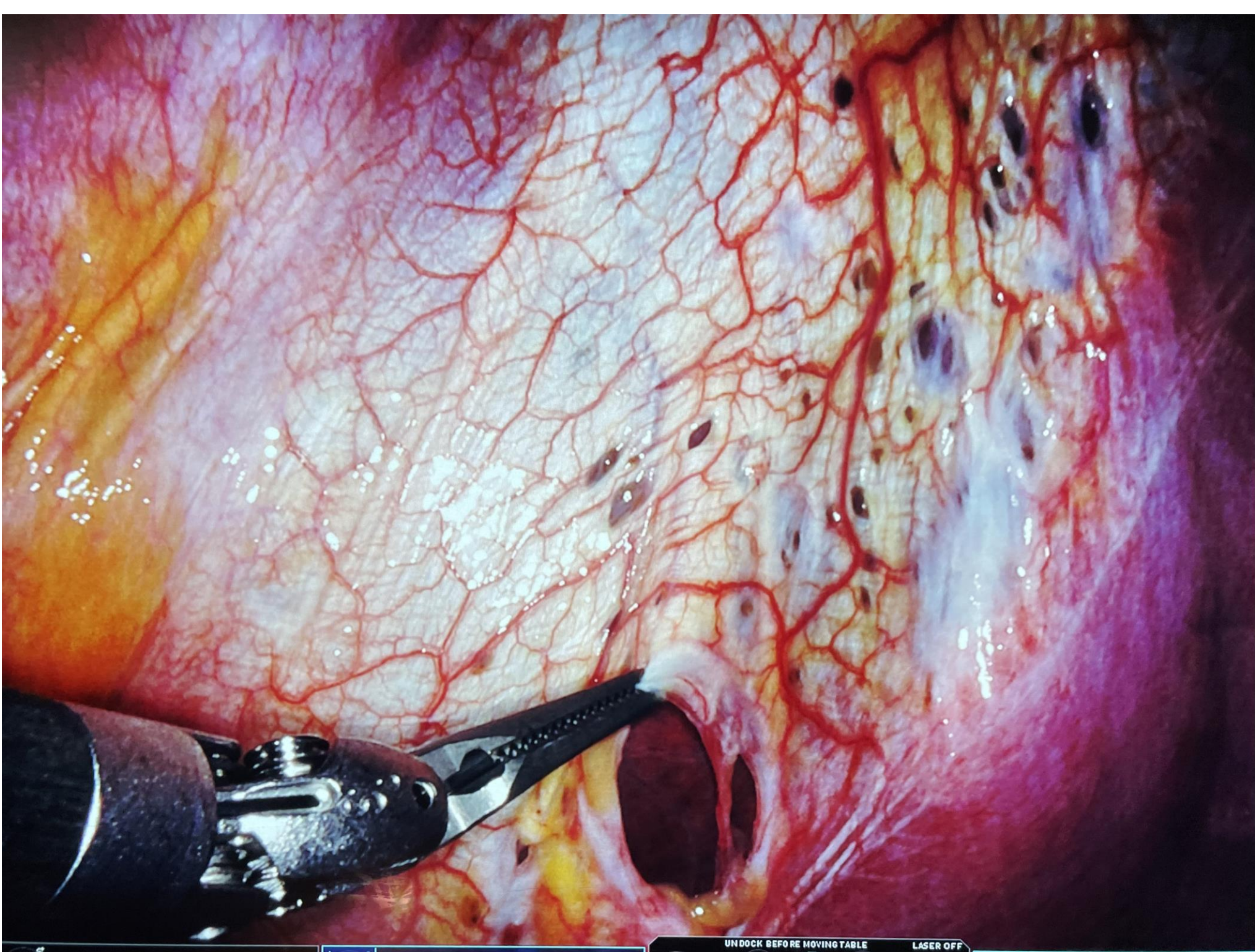


Initial CT image concerning for focal liver herniation

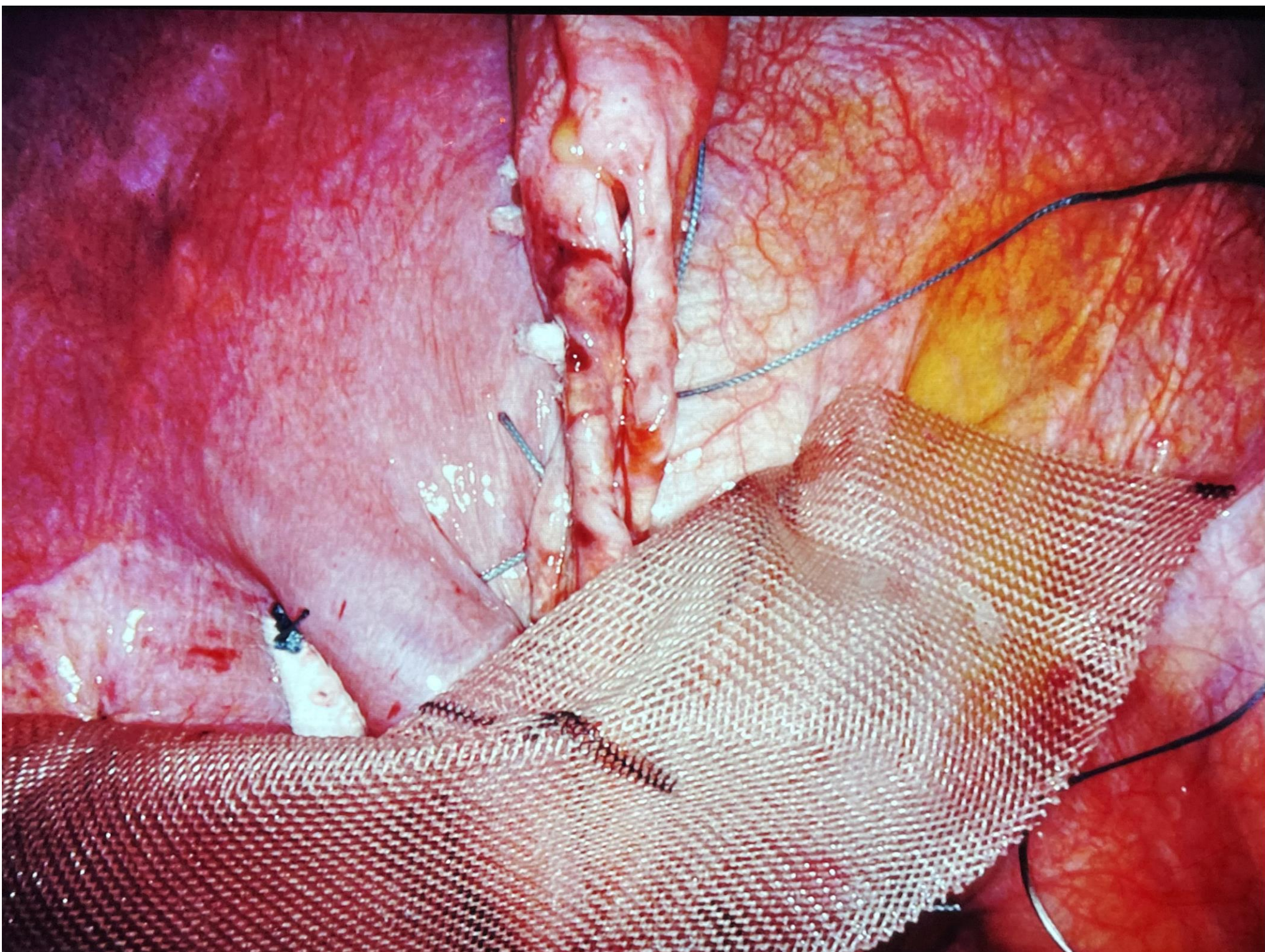


Initial MRI image showing liver herniation and diaphragmatic cysts

TREATMENT IMAGING



Intraoperative photo demonstrating diaphragmatic fenestrations



Intraoperative photo demonstrating robotic-assisted thoracoscopic diaphragm repair and mesh placement using Intuitive da Vinci platform

FOLLOW-UP IMAGING



Postoperative chest x-ray showing normal right lung and diaphragm

REFERENCES

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