Ultrasound-Guided Cyst Aspiration in Acute Adnexal Torsion

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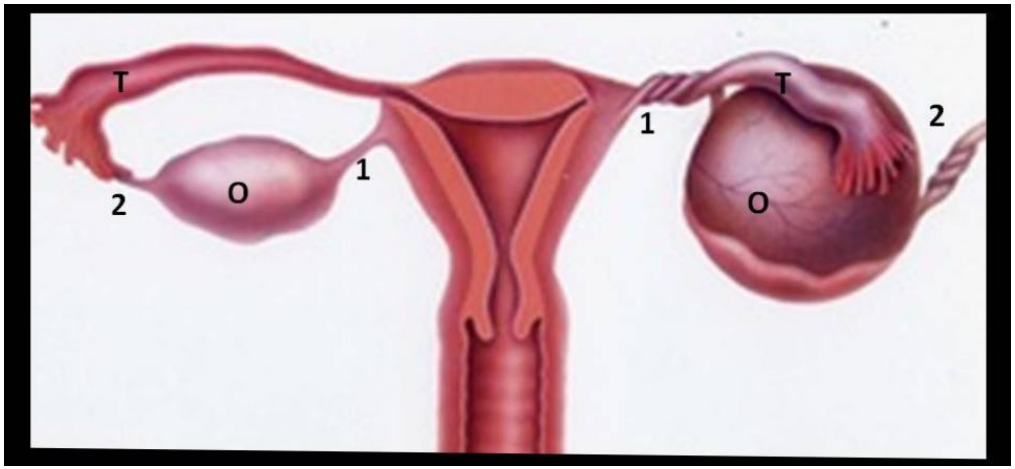
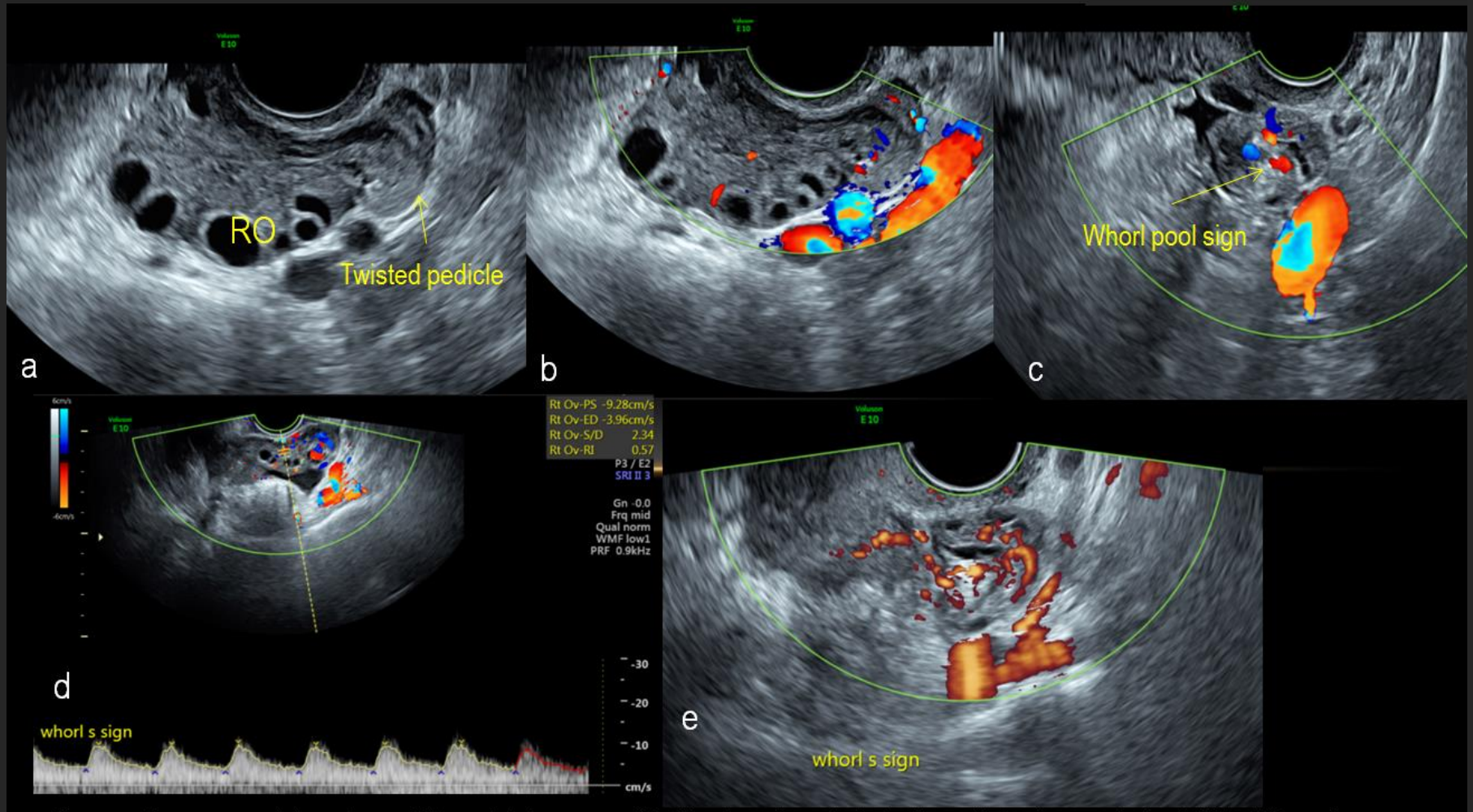
Introduction

- - Adnexal torsion: twisting of ovary and/or fallopian tube
- - Commonly associated with cysts (functional, dermoid, etc.)
- - Traditional treatment: emergency laparoscopic surgery
- - New approach: ultrasound-guided cyst aspiration



Ovarian Torsion



Case of recurrent torsion of the right ovary (RO) showing twisted pedicle (arrow) (a & b). US color Doppler shows Whorl pool sign (c & e). Right ovarian artery Doppler shows preserved arterial flow with decreased venous flow (d).

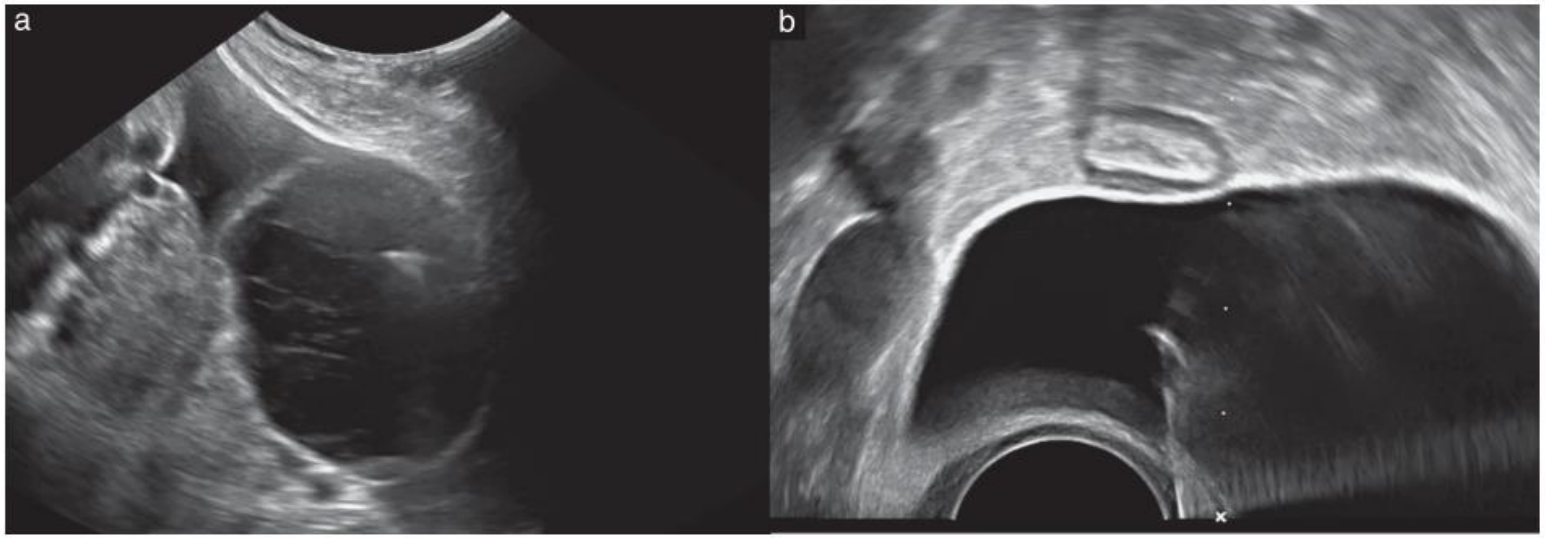
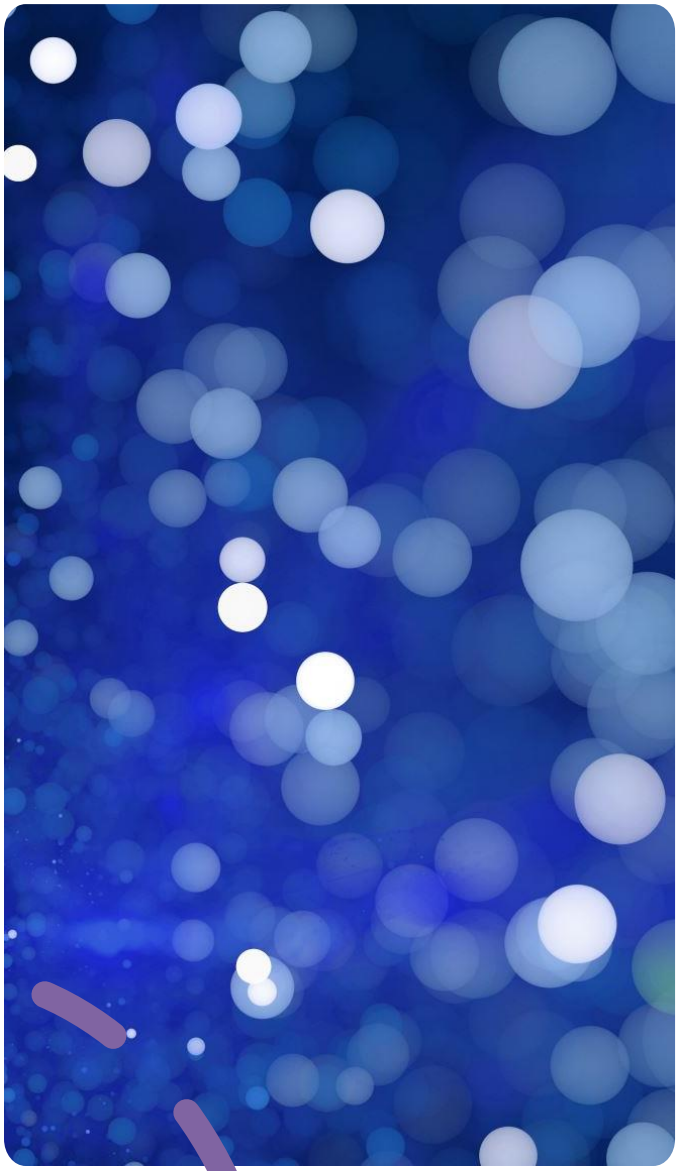


Figure 1 Grayscale ultrasound images showing technique for ultrasound-guided cyst aspiration via transabdominal (a) and transvaginal (b) route in patients with acute adnexal torsion.

Objective

To evaluate the effectiveness of ultrasound-guided cyst aspiration

as a non-surgical management option for acute adnexal torsion.



Methods

- Retrospective study (2008–2023), London, UK

- 46 patients (52% pregnant)

- Success = Avoidance of emergency surgery

- Aspiration route: 65% transabdominal, 35% transvaginal

Results

- 85% had complete symptom resolution after aspiration

- 15% (7 patients) required emergency laparoscopy

- No malignancy or complications reported

- 54% avoided any surgery during follow-up

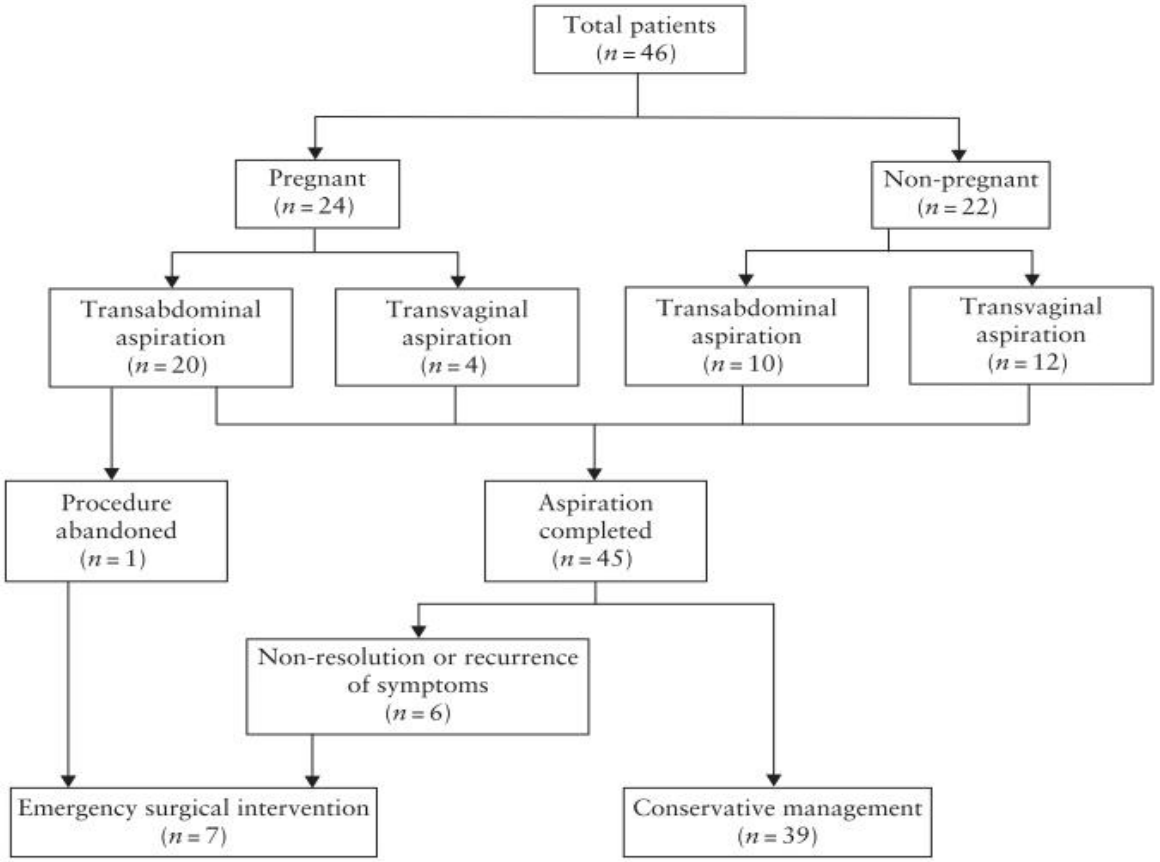


Figure 2 Flowchart summarizing outcomes of patients who underwent ultrasound-guided cyst aspiration for management of acute adnexal torsion.

Efficacy

In total, 39 of the patients (85%) experienced complete resolution of symptoms immediately after ultrasound-guided cyst aspiration. The remaining seven (15%) patients underwent laparoscopic management of adnexal torsion. One patient complained of severe discomfort during aspiration, which was therefore abandoned after 40 mL of cyst content had been aspirated. Six patients reported improvement of symptoms immediately after aspiration but their pain recurred within 1–13 days, preserved. However, the patient who presented 13 days after ultrasound-guided cyst aspiration had an emergency salpingectomy for a necrotic Fallopian tube. This patient initially presented with a 1-week history of unilateral

Table 1 Demographic and clinical characteristics of patients who underwent ultrasound-guided cyst aspiration for management of acute adnexal torsion ($n = 46$)

Characteristic	*Value*
Age at presentation (years)	28 (24–33)
Parity	
0	32 (70)
1	10 (22)
≥ 2	4 (9)
Gravidity	
0	18 (39)
1	10 (22)
≥ 2	18 (39)
Gynecological abnormality	
None	34 (74)
Fibroids	4 (9)
Polycystic ovarian morphology	4 (9)
Endometriosis	1 (2)
Adenomyosis	1 (2)
Cervical intraepithelial neoplasia	1 (2)
Congenital uterine anomaly (uterus didelphys)	1 (2)
Surgical history	
None	25 (54)
Surgical termination of pregnancy	6 (13)
Cesarean section	4 (9)
Surgical management of miscarriage	2 (4)
Laparoscopic ovarian cystectomy and appendectomy	2 (4)
Hysteroscopy and laparoscopy for assessment of tubal patency	1 (2)
Laparoscopic ovarian cystectomy and Cesarean section	1 (2)
Laparoscopic ovarian cystectomy and LLETZ	1 (2)
Laparoscopic ovarian cystectomy and hysteroscopy	1 (2)
Laparoscopy for treatment of endometriosis and Cesarean section	1 (2)
Appendectomy	1 (2)
Cesarean section and appendectomy	1 (2)
Hormonal contraception	
None	33 (72)
Levonorgestrel IUD	5 (11)
Copper IUD	2 (4)
Combined hormonal contraception	5 (11)
Medroxyprogesterone acetate injection	1 (2)

Data are given as median (interquartile range) or *n* (%). IUD, intrauterine device; LLETZ, large loop excision of transformation zone.

Table 2 Symptoms at presentation of patients who underwent ultrasound-guided cyst aspiration for management of acute adnexal torsion ($n = 46$)

Symptom	*Value*
Acute abdominal pain	25 (54)
Acute abdominal pain + vomiting	19 (41)
Acute abdominal pain + diarrhea + difficulty passing urine	1 (2)
Chronic abdominal pain*	1 (2)

Data are given as *n* (%). *Pain reported to have been ongoing intermittently for 9 months.

Table 3 Cyst morphology in patients who underwent ultrasound-guided cyst aspiration for management of acute adnexal torsion ($n = 46$)

Characteristic	*Value*
Location	
Ovarian	41 (89)
Paraovarian	4 (9)
Ovarian + paraovarian	1 (2)
Echogenicity	
Anechoic	44 (96)
Low-level echogenicity	2 (4)
Internal structure	
Unilocular	46 (100)
Presumed histological diagnosis	
Simple functional cyst	42 (91)
Benign epithelial cyst	4 (9)
Cytology	
Benign cyst content, no epithelial cells identified	37 (80)
Benign cyst content, epithelial cells identified	3 (7)
Inadequate for cytological examination	6 (13)

Data are given as *n* (%).

Table 4 Ultrasound features of adnexal torsion in patients who underwent ultrasound-guided cyst aspiration for management of acute adnexal torsion ($n = 46$)

Feature	*Value*
None	21 (46)
Ovarian stromal edema	13 (28)
Ovarian stromal edema + ovary located anterior to uterus	5 (11)
Ovary located anterior to uterus	4 (9)
Ovarian stromal edema + edema of ipsilateral Fallopian tube	1 (2)
Ovarian stromal edema + ovary located anterior to uterus + edema of ipsilateral Fallopian tube	1 (2)
Ovarian stromal edema + whirlpool sign	1 (2)

Data are given as *n* (%).

Pregnancy Outcomes

- - 22/24 (92%) procedures successful in pregnant patients
- - 1 miscarriage (likely unrelated)
- - Majority had normal deliveries
- - Good follow-up outcomes

Advantages & Safety

- Avoids surgery, anesthesia, and hospital admission

- Safe for pregnant or high-risk patients

- No serious complications

- Suitable for functional cysts

Conclusion

- Effective, minimally invasive option for managing torsion

- Best for simple, unilocular cysts with anechoic fluid

- Requires skilled ultrasound operator

- Potential alternative to emergency surgery

Reference

- Berg L, et al. Ultrasound-guided cyst aspiration for management of acute adnexal torsion.
- Ultrasound Obstet Gynecol. .797–65:790;2025
- DOI: 29225.gou/10.1002