

EP02.17 Adnexal torsion in prepubertal girls: the role of ultrasound in prompt diagnosis

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Introduction

- Adnexal torsion** = rotation of ovary ± tube around infundibulopelvic ligament → venous/lymphatic obstruction, edema, hemorrhage, necrosis.
- Rare in pediatrics: **incidence ~4.9 per 100,000 girls/year; no specific data for prepubertal girls.**
- Clinical signs:** sudden lower abdominal pain, nausea, vomiting.
- Early surgery with detorsion** is crucial for ovarian function preservation.

Clinical presentation

- Acute lower abdominal pain** → most frequent symptom
- Vomiting** in ~70% of prepubertal cases
- Fever** uncommon, but reported in ~20% (usually >24 h after onset)
- Palpation:** abdominal tenderness, sometimes defense
- Symptoms nonspecific** → delay in diagnosis common
- Vomiting, leukocytosis, elevated CRP** may predict ischemic torsion in pediatric cases

Risk factors

- Ovarian mass ≥ 5 cm** → significantly increases torsion risk
- Hypermobile adnexa** (elongated ligaments common in prepubertal girls)
- Recurrent cysts / no oophoropexy** → ~15% recurrence risk in prepubertal group
- Altered bowel movements (constipation/diarrhea)** → peristalsis may trigger torsion
- Sudden or intense physical activity** → may precipitate torsion

Case reports

Case 1 – 6-year-old girl

- Presented with acute, progressive lower abdominal pain during the night.
- Despite early ER admission, **diagnosis of adnexal torsion was delayed for >15 hours.**
- Finally, gynecology exam confirmed left adnexal torsion; laparoscopic detorsion restored perfusion.
- Highlights the diagnostic challenge of torsion in prepubertal girls with nonspecific symptoms.

Timeline of case 1

Time	Event
02:30	Woke up with progressive lower abdominal pain Paracetamol no effect, afebrile, drank fluids, urination normal, constipation history
03:26	First exam at Pediatric ER – persistent pain
15:55	Vomiting 2x, painkiller given again, abdominal US (Pediatric ER): left ovary not well distinguished from uterus, enlarged, echodense with small cysts
17:30	Admitted to Pediatric Surgery
18:38	Gynecology exam: whirlpool sign → left adnexal torsion confirmed
< 1 h later	Laparoscopic detorsion – ovary ischemic at first, perfusion mostly restored
Follow-up	Seen for constipation, no recurrent torsion

Case 2 – 8-year-old girl

- Known right ovarian cyst (5 cm) identified 19 days earlier (CT); asymptomatic on control US 9 days prior.
- Presented with **acute right lower abdominal pain and vomiting** on 02/21 morning.
- On admission: **defense on palpation**, poor general condition.
- Gynaecology exam:** torsion suspected; **surgery within 1 h** confirmed right adnexal torsion.
- Histology:** serous cystadenoma.

Timeline of case 2

Time	Event
-19 days	Transient abdominal pain, CT: right ovarian cyst (5 cm)
-9 days	Control abdominal US: asymptomatic, cyst present, no change in size
02/21 07:00	Sudden right lower abdominal pain + vomiting after fluid intake (2 h distance)
09:45	Abdominal defense on palpation, poor general condition
10:02	Gynecology exam: strong suspicion of adnexal torsion→ immediate surgical indication
< 1 h later	Laparoscopic detorsion – torsion is confirmed, cyst resection performed
Follow-up	No complaints, histology: serous cystadenoma.

Discussion

- Adnexal torsion may occur in prepubertal girls even without ovarian cysts**, making diagnosis difficult.
- Presence of an **ovarian cyst increases torsion risk** (as in Case 2).
- Ultrasound is pivotal:** enlarged, edematous ovary, absent Doppler flow, whirlpool sign = key findings.
- >15 h diagnostic delay** in Case 1 highlights the challenge of recognizing torsion in nonspecific pediatric presentations.
- Recurrence risk is higher in prepubertal girls (~15% without oophoropexy)** compared to adolescents.
- Careful follow-up and consideration of prophylactic fixation may be warranted.
- Diagnosis delay (~30%)** significantly increases oophorectomy risk
- Timely surgery is essential** for ovarian preservation.

Conclusions

- Adnexal torsion must be considered in every prepubertal girl with acute abdominal pain.**
- Ultrasound is the key diagnostic tool** – whirlpool sign and absent Doppler flow are crucial.
- Delayed diagnosis (>15 h in Case 1)** demonstrates the challenge of nonspecific pediatric symptoms.
- Recurrence risk is higher in prepubertal girls** → careful follow-up and possible oophoropexy should be considered.
- Early surgical intervention is essential for ovarian preservation.**

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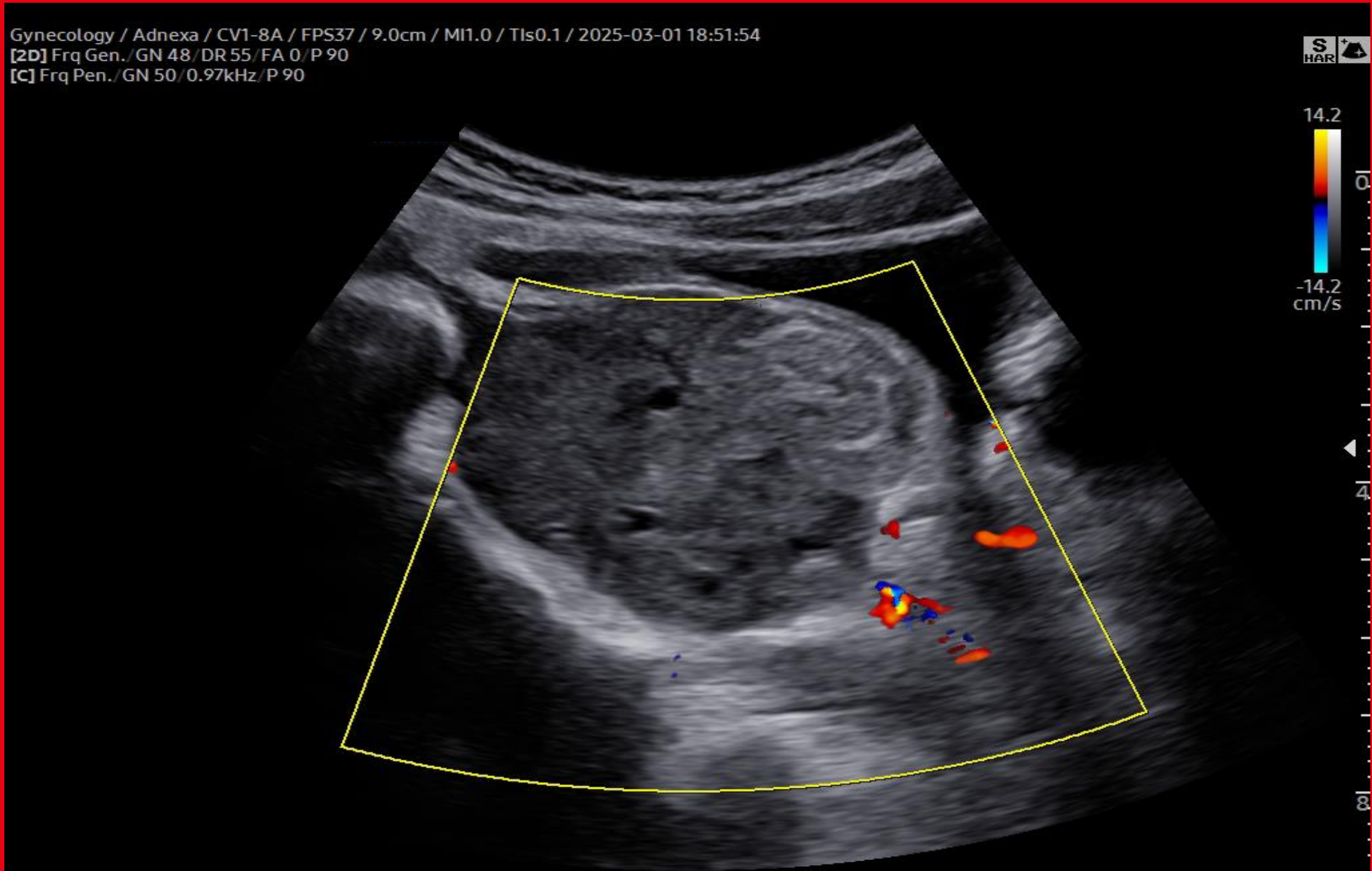


Figure 1 **Case 1 – 6-year-old girl**
Left ovary 48×43×40 mm, edematous, no detectable blood flow. Whirlpool sign visible laterally.

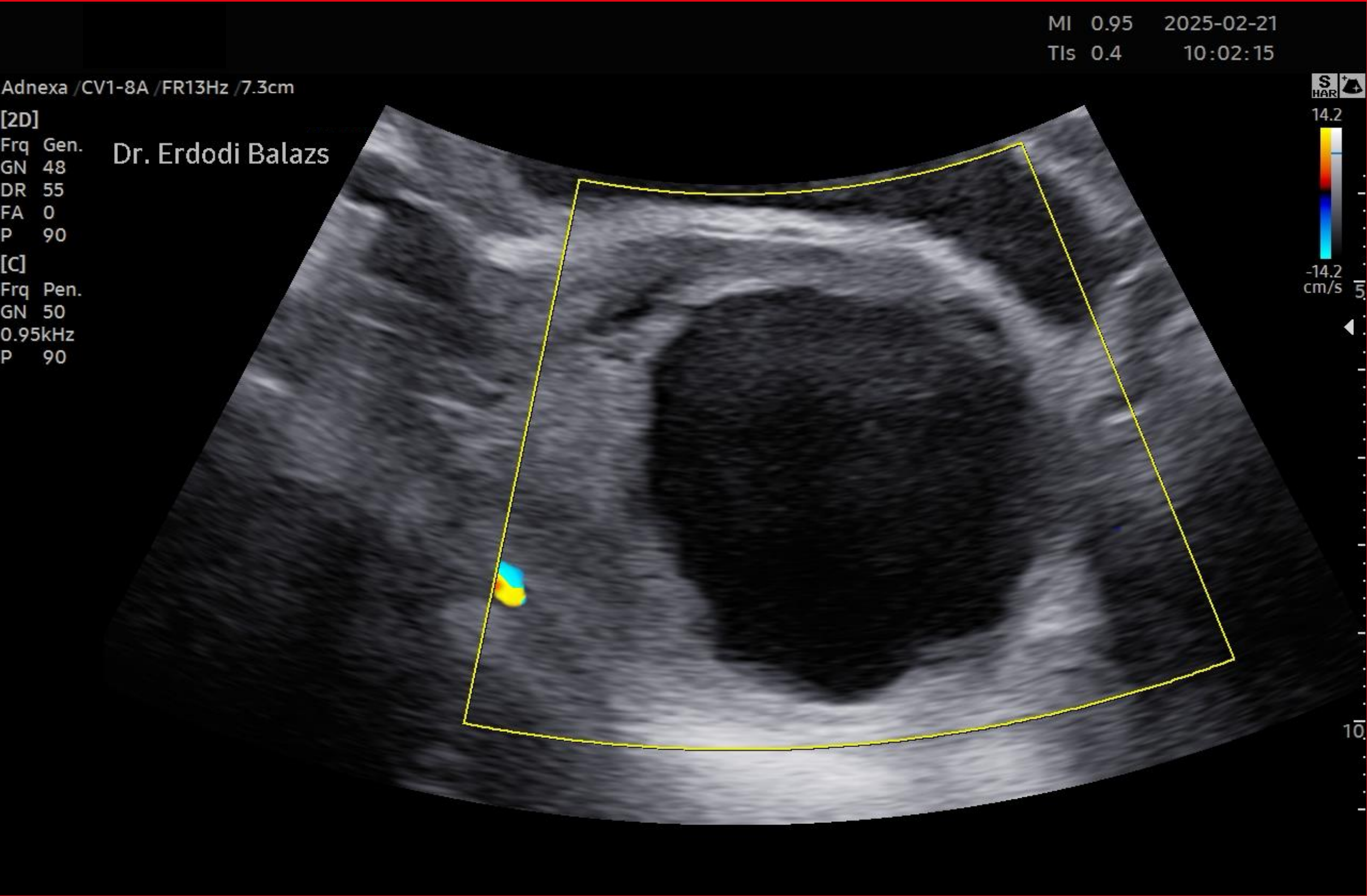


Figure 2. **(Case 2 – 8-year-old girl)**
Right-sided, unilocular cystic lesion with edematous wall located behind the uterus, consistent with adnexal torsion.