

Scan findings in MC twins with acute TOPS (TTTS)



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Pathology - TOPS

- All MC twins have placental vascular communications between the fetuses
- Usually there are many connections so any flow through one vessel is balanced by flow back elsewhere
- Some MC twins have few connections, mainly arteriovenous so blood volume flows from one twin, **the donor**, to the other **the recipient**



Pathology - TOPS

- The **donor** has an underfilled circulation and reduces urine output
- The **recipient** has an overloaded circulation so increases urine output. In severe cases the heart is so overloaded there is heart failure and hydrops
- This causes the typical scan findings

Twin **O**ligohydramnios **P**olyhydramnios **S**equence (TOPS)



Selective growth restriction (sIUGR)

- sIUGR is a different pathology
- Difference in fetal size is not a feature of TOPS
- TOPS may complicate sIUGR
- If they occur together the smaller twin is always the donor (reduced liquor)



Presenting symptoms and history

- Monochorionic twins
- New onset abdominal pain, usually with rapidly increasing uterine distension
- Most common presentation between 16 to 24 weeks
- But if presents after 24 weeks, polyhydramnios may develop unusually quickly



Clinical signs for TOPS

Signs

- Acute, tense, uterine distension
- Increased fundal height
- Threatened labour



Actions to take

- **Any mother with MC twins presenting with abdominal pain after 16 weeks should be assumed to have TOPS until this has been excluded by a scan which must be performed before discharge.**
- Do not be put off by recent scans – these may be wrong or the polyhydramnios may be developing very rapidly even if recent scan normal
- Some cervical activation common so urine may contain protein – this is not evidence of UTI and does not mean no scan necessary



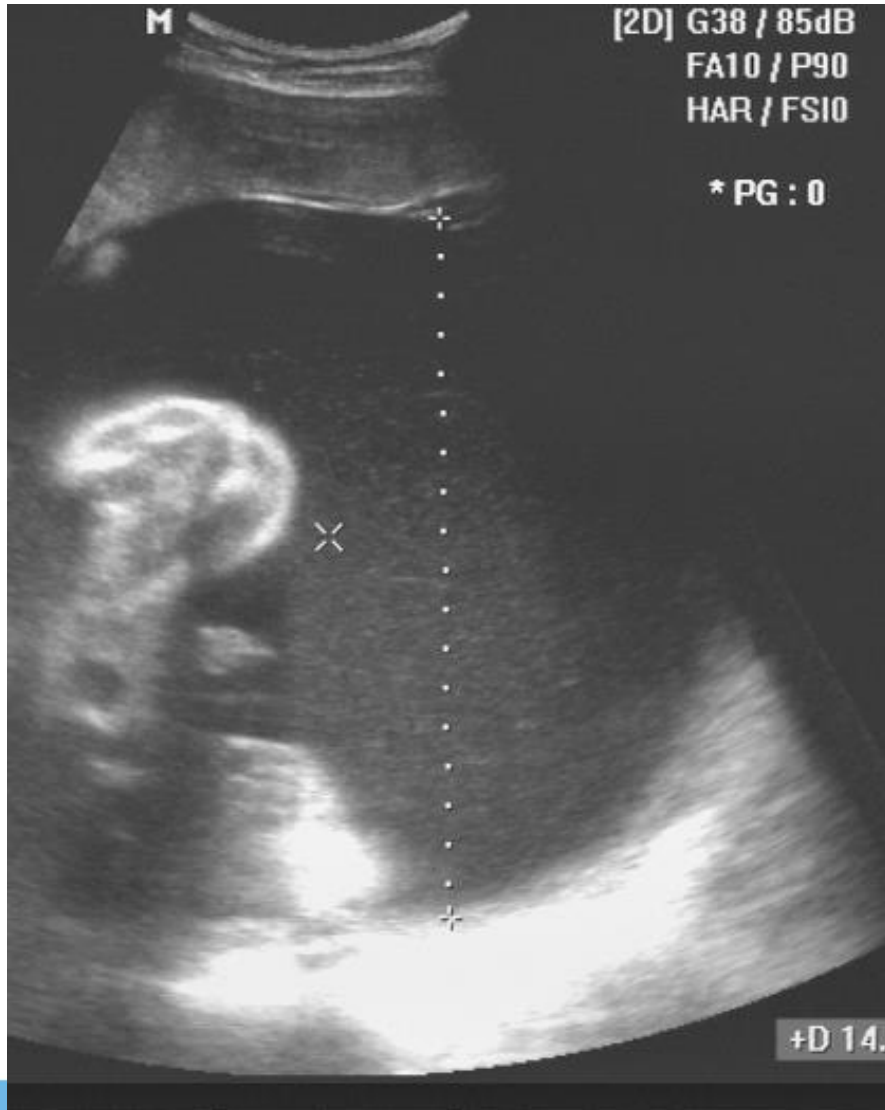
Key ultrasound features of TOPS

- Discrepant liquor
 - Oligohydramnios in donor (deepest pool <2cm)
 - Polyhydramnios in recipient (deepest pool >10cm after 20 weeks)
- Discrepant Bladders
 - donor small/absent
 - recipient large
- Membranes
 - Infolded towards donor
 - May be stuck against donor so difficult or impossible to see



Ultrasound signs of TOPS

Discrepant liquor



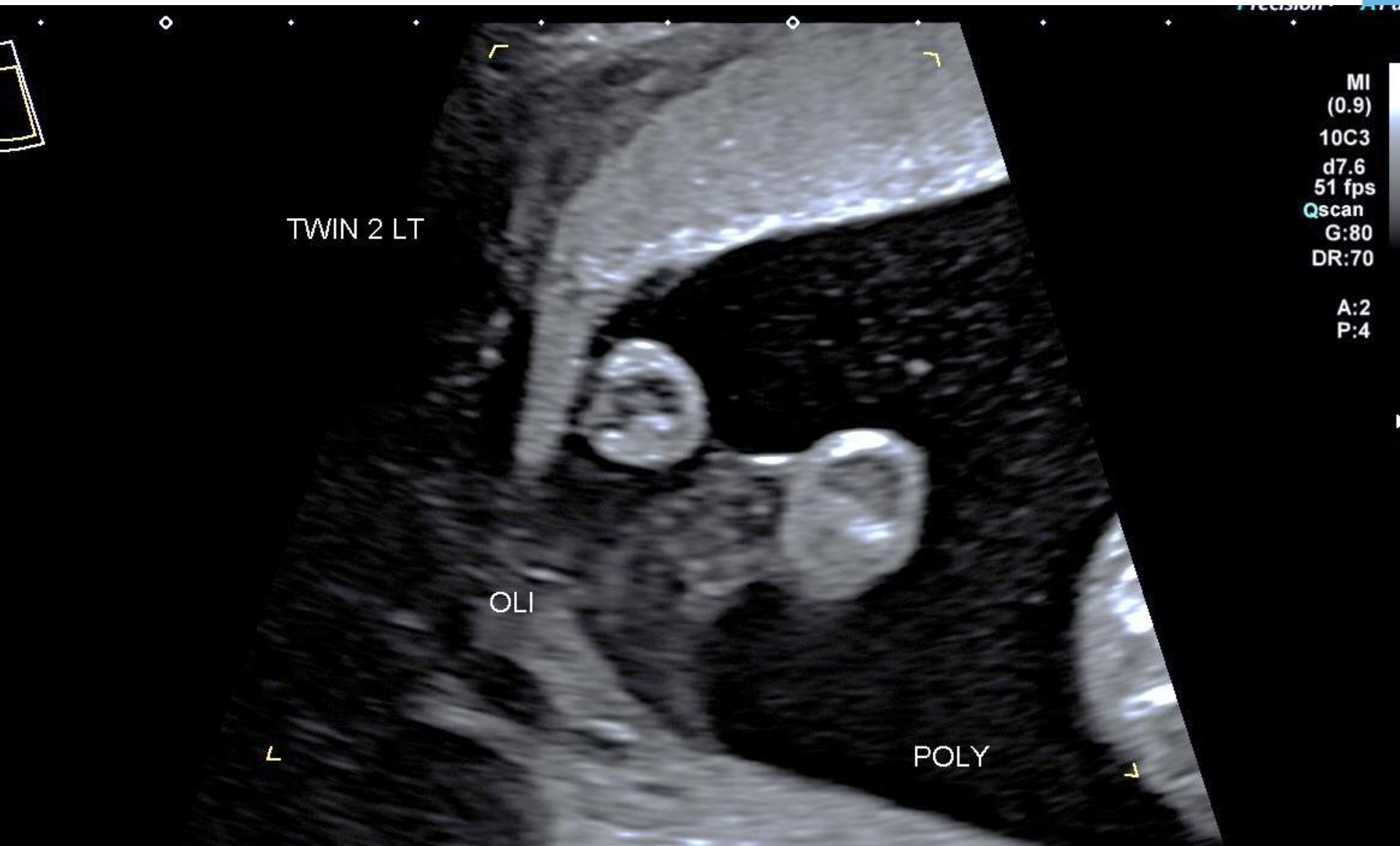
Ultrasound signs of TOPS

Discrepant bladders



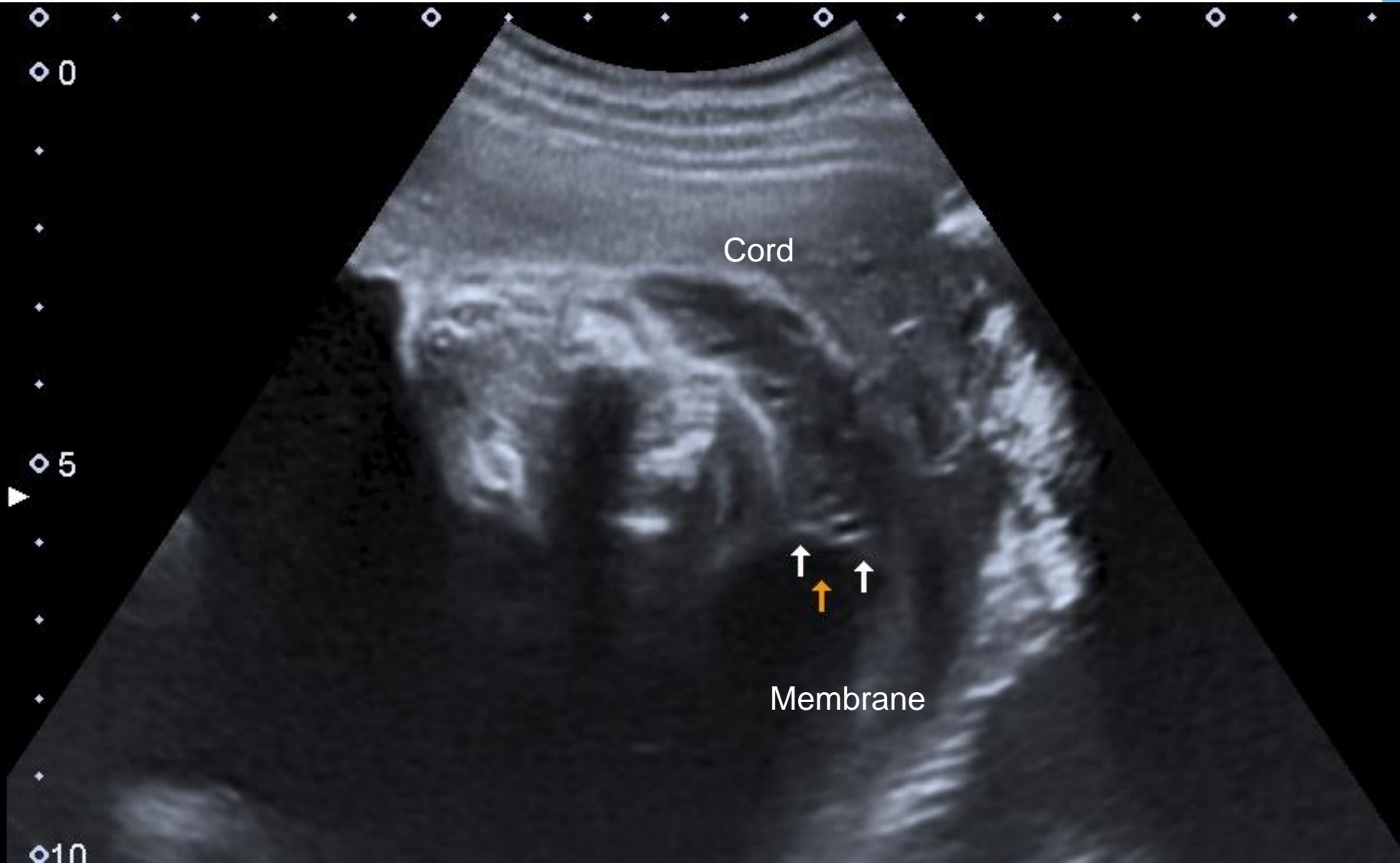
Ultrasound signs of TOPS

Differential liquor appearance



Ultrasound signs of TOPS

Membrane invisible – holding “stuck” twin to uterine wall

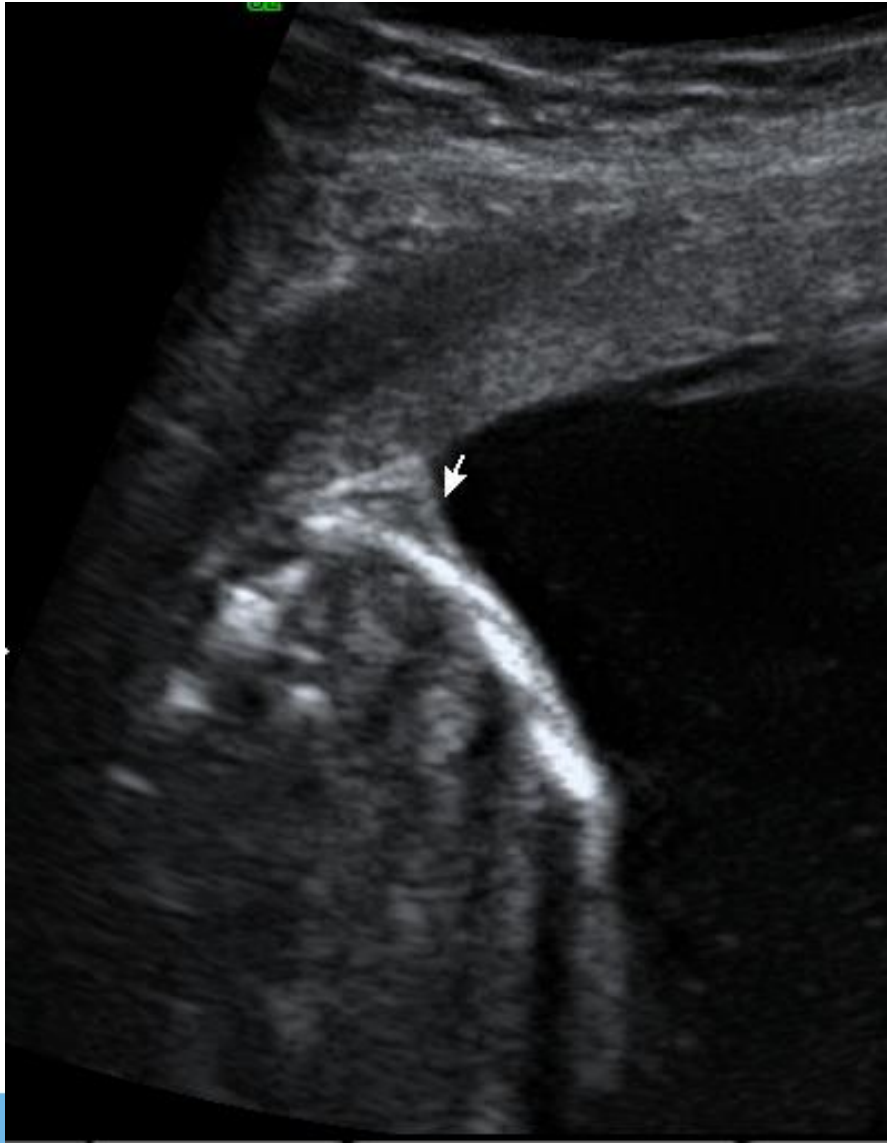


Folded membrane, masquerading as normal



Ultrasound signs of TOPS

Late findings – ascites/hydrops



Conclusion

- All labour ward consultants or senior registrars should know and be able to identify the features of established TOPS
- If uncertain, the mother should be kept in hospital until the scan can be repeated by a fetal medicine consultant or sonographer with relevant experience
- If in doubt telephone for advice

