

# Fetal MRI of thoraco-omphalopagus conjoined twins

Hazrini Abdullah, Nyazirah Abdul Wahab, Khatijah Abu Bakar

Imaging Department, Hospital Sultanah Aminah, Johor Bahru, Johor, Malaysia

Correspondence to  
Dr Hazrini Abdullah,  
hazrini@hotmail.com

Accepted 20 May 2017

## DESCRIPTION

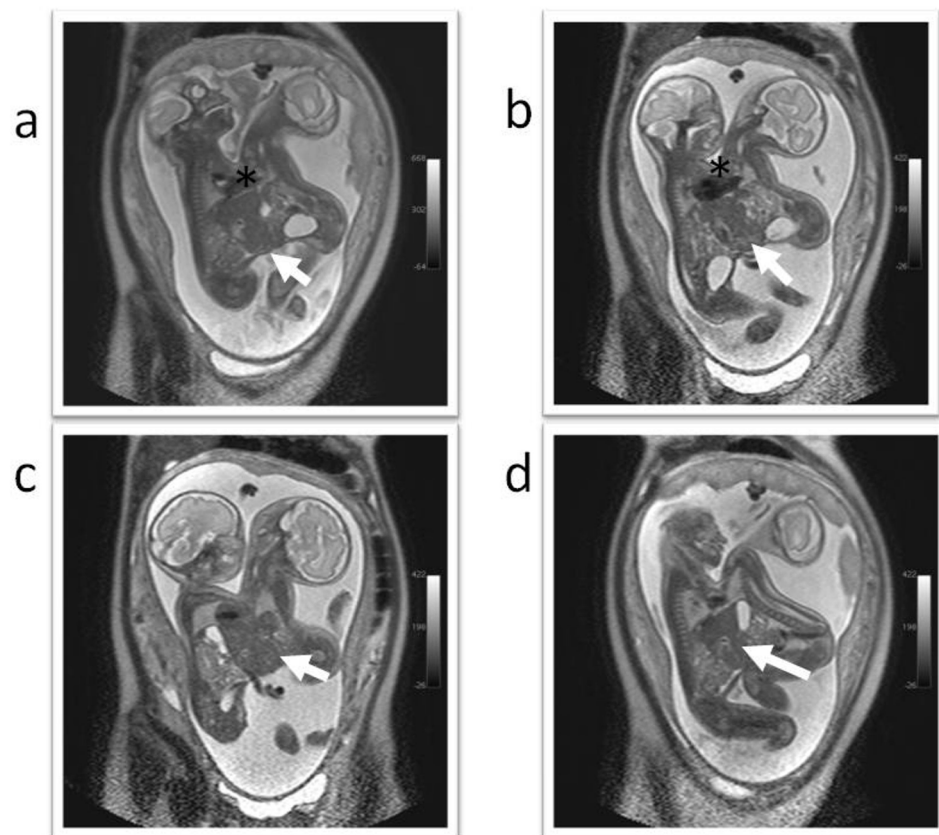
Conjoined twins are very rare with incidence of 1 per 250 000 live births.<sup>1</sup> Fetal MRI is an important adjunct to ultrasound particularly in evaluation of complex fetal anomalies and organ positions.<sup>2,3</sup> This case report illustrates our first experience in MRI fetal of conjoined twins with the current available sequences.

An 18-year-old G<sub>2</sub> P<sub>0+1</sub>, with no known medical illness, was diagnosed with conjoined twin pregnancy from antenatal ultrasound at 28 weeks. MRI of pelvis was performed using a 1.5 T Phillips using torso array coil. Sequences employed were *Coronal T2 FB* (free breathing), *Axial T2 FB*, *Sagittal T2 FB*, *BB\_SSh\_RTrig SE*, *Axial BTFE* and *BB\_SSh\_RTrig SE*. The effective time echoof 188 s, 10mm slice thickness. Each slice was performed in 2s, and the full sequences in each imaging plane require 27 s, 256×256 matrix and 34 cm field of view.

It showed conjoined twins with single and fused heart, and liver represented a thoraco-omphalopagus presentation (figure 1).

The images from MRI allow counselling with the parents regarding poor prognosis of the non-operable fused heart and liver (figure 2). The patient underwent emergency caesarean section due to premature labour. Two baby girls were found to be joined at the thorax and abdomen (fused heart and liver) with single umbilical cord insertion. The patients succumbed to death due to heart failure at day 2 of life.

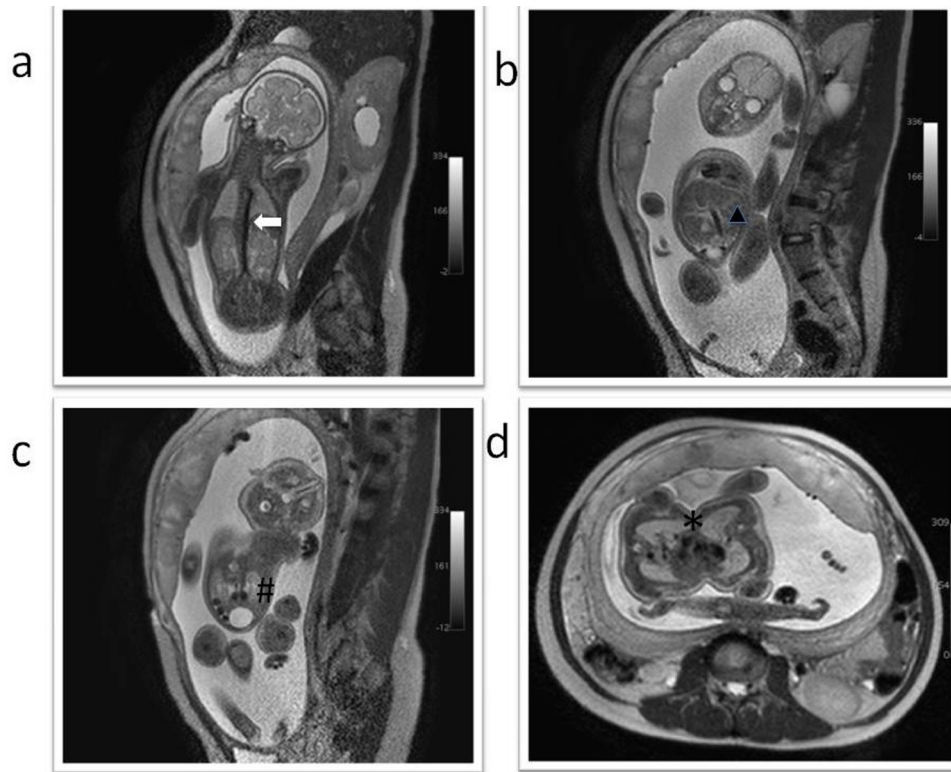
In our experience, the most useful MRI sequence is T2 FB in all three planes. The advent of fast acquisition sequences in MRI technology allows better images by minimising movement and breathing artefacts.



**Figure 1** Fetal MRI in T2 FB coronal images (A–D) show conjoined twins face to face with fusion of the upper thorax and abdomen. The shared heart (\*) is in the midline, positioned horizontally between the two fetuses. Single liver is shared between both fetuses (∞). Each fetus has separate stomach, kidneys, urinary bladder and two upper and two lower limbs. FB, free breathing.



To cite: Abdullah H, Abdul Wahab N, Abu Bakar K. *BMJ Case Rep* Published Online First: [please include Day Month Year]. doi:10.1136/bcr-2017-219793



**Figure 2** Sagittal T2 FB (A) shows fetal thoracic and abdominal aorta (↖) and (B) shows the IVC (Δ) of the fetus. (C) shows thin low signal linear structure anterior to the vertebral body representing small calibre thoracic and abdominal aorta (#) of the fetus. Axial T2W (D) shows single fused heart (\*) and two separate lungs. FB, free breathing. IVC, inferior vena cava

**Learning points**

- ▶ Ultrasound is the mainstay of fetal imaging, but combination of ultrasound and fetal MRI has been shown to be 60% more superior to ultrasound alone in twin pregnancies.
- ▶ MRI shows improved anatomical detail compared with ultrasound which is particularly useful for preoperative assessment or in cases of maternal obesity and oligohydramnios which limits sonographic ability to differentiate soft tissues.
- ▶ The advent of fast acquisition sequences in MRI technology allows better images by minimising movement and breathing artefacts.

**Contributors** All authors contributed in the construction of the body of the article. Planning, reporting, conduct conception, design and data acquisition were done

by HA and NAW. Images analysis and literature reviews were also done by HA and NAW. KAB contributed in the planning and initial idea of the manuscript.

**Competing interests** None declared.

**Patient consent** Obtained.

**Provenance and peer review** Not commissioned; externally peer reviewed.

© BMJ Publishing Group Ltd (unless otherwise stated in the text of the article) 2017. All rights reserved. No commercial use is permitted unless otherwise expressly granted.

**REFERENCES**

- 1 Spielmann AL, Freed KS, Spritzer CE. MRI of conjoined twins illustrating advances in fetal imaging. *J Comput Assist Tomogr* 2001;25:88–90.
- 2 Chelliah KK, Faizah MZ, Dayang AA, et al. Multimodality imaging in the assessment of thoraco-omphalopagus conjoined twin: lessons to learn. *Case Rep Radiol* 2012;2012:1–4.
- 3 Muayad SO, Said TA. Conjoined twins—thoraco-omphalopagus (type A). *BJR case reports* 2016;2:1.

Copyright 2017 BMJ Publishing Group. All rights reserved. For permission to reuse any of this content visit <http://group.bmj.com/group/rights-licensing/permissions>. BMJ Case Report Fellows may re-use this article for personal use and teaching without any further permission.

Become a Fellow of BMJ Case Reports today and you can:

- ▶ Submit as many cases as you like
- ▶ Enjoy fast sympathetic peer review and rapid publication of accepted articles
- ▶ Access all the published articles
- ▶ Re-use any of the published material for personal use and teaching without further permission

For information on Institutional Fellowships contact [consortiasales@bmjgroup.com](mailto:consortiasales@bmjgroup.com)

Visit [casereports.bmj.com](http://casereports.bmj.com) for more articles like this and to become a Fellow