

Neonatal spinal ultrasound for closed spinal dysraphism: an audit of the referral indications and results across three North London hospitals

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BACKGROUND

- Closed spinal dysraphism is a rare developmental abnormality that can cause spinal cord tethering and neurological injury.
- This is readily detectable in neonates with ultrasound (US) owing to the cartilaginous posterior elements of the neonatal spine (figure).
- US within 2 weeks is the first-line investigation in neonates with specific clinical findings on the newborn exam (below)^{1,2,3}.
- US is limited in older children due to patient movement, and ossification of the posterior spinal elements.

STANDARD: iRefer guidelines P08/P19^{1,2}

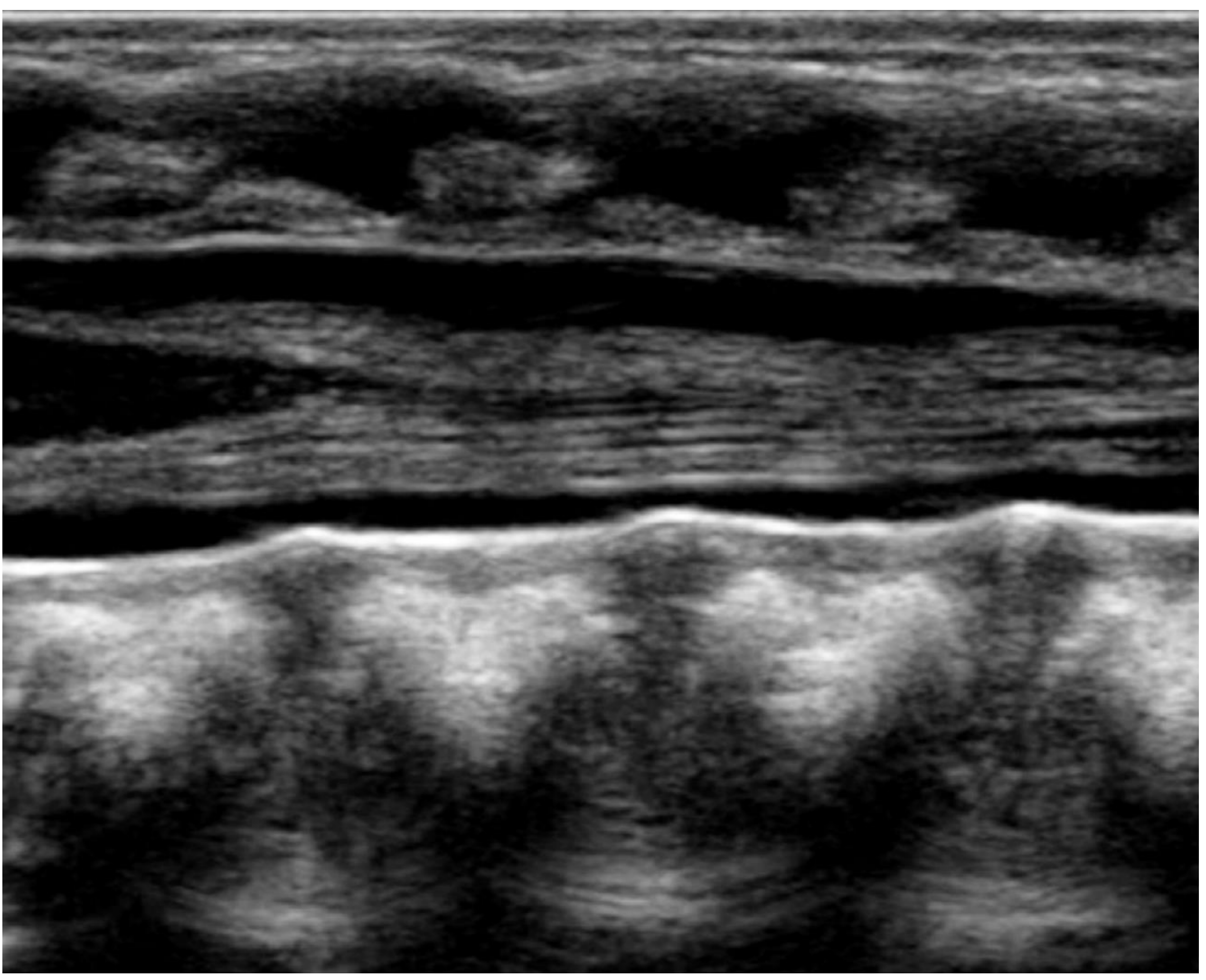
100% of sacral dimple ultrasound requests should meet at least one of the following criteria:

- **Cutaneous stigmata**
- **Abnormal neurological examination**
- **Associated conditions such as VACTERL**
- **Sacral dimple assessment:** >5mm diameter, OR > 2.5 cm from anus, OR unable to see base

The US should ideally be performed within 2 weeks of the referral.

AIMS / OBJECTIVES:

- Understand the patterns and pitfalls of US requests across 3 North London Hospitals
- Determine the proportion of requests that meet the standard
- Devise recommendations for referral practice



METHODS:

- Retrospective review of US scans performed for patients with suspected spinal dysraphism across Barnet, Whittington, and Royal Free Hospitals.
- Examination search terms on PACS were used to find ~80 spine scans/hospital.
- Scan requests were excluded if the patient did not attend the appointment, or if the clinical question did not relate to occult spinal dysraphism.

RESULTS:

- Most common incorrect referral was a ‘sacral dimple alone’.
- 8% of patients, (20/248), were >6 months of age at examination.
- Average Interval between request and examination was 16-24 days with no concerning patterns of delay noted.
- 5 ultrasounds were abnormal, 4 of these met guidelines and required MRI/neurosurgical review.

45% of all US requests met the standard, (112/248)

65% of hospital requests met the standard, (114/175)

30% of GP requests met the standard, (22/73)

RECOMMENDATIONS:

Findings were presented and discussed locally in each hospital’s radiology department and disseminated to neonatal consultants.

Recommendations include:

1. Improve Royal Free Trust guidance by adding images of normal/abnormal sacral dimples
2. Create Whittington Trust guidance (none currently)
3. Provide educational sessions for requesting practitioners in GP and hospital settings

References:

1. (iRefer) P08: Congenital disorders of the spine in children
2. (iRefer) P19: Sacral dimple/pit or other cutaneous stigmata in children (e.g., hairy patch)
3. (Intranet): Royal Free NHS Foundation Trust guidance “Sacroccygeal Dimples” May 2023