Min Review

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Clinical Significance of Sacral Dimples in Newborns: Diagnostic Value and Imaging Considerations

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1. Abstract

Sacral dimples are commonly observed cutaneous findings in newborns and have traditionally been considered markers of possible underlying Occult Spinal Dysraphism (OSD). Consequently, even isolated sacral dimples are frequently investigated with spinal ultrasound and sometimes Magnetic Resonance Imaging (MRI). These imaging procedures are performed to avoid missing clinically significant malformations and to permit early intervention. However, imaging is not without risks, particularly when MRI requires sedation or anesthesia in infants. Current evidence suggests that when sacral dimples occur in isolation without additional cutaneous abnormalities, the likelihood of OSD is low. False-positive ultrasound findings may lead to unnecessary MRI examinations and avoidable health risks. Screening ultrasound should therefore be reserved for sacral dimples associated with other cutaneous markers, especially those known to have stronger associations with OSD.

2. Keywords

Sacral dimple; Sacral pit; Ultrasound; Magnetic resonance imaging; Occult spinal dysraphism; Newborn screening

3. Abbreviations

Occult Spinal Dysraphism (OSD); Magnetic Resonance Imaging (MRI)

4. Introduction

Sacral dimples are among the most common cutaneous abnormalities identified during the neonatal period. These lesions are thought to result from incomplete closure of the neural tube during embryonic development. Their association with spinal abnormalities capable of causing neurological deficits has often led clinicians to adopt a cautious approach and pursue further imaging.

Among various cutaneous markers associated with OSD, sacral dimples are the most frequently encountered. While vigilance is understandable, many infants with isolated sacral dimples have no underlying spinal pathology. Nevertheless, concern regarding missed diagnoses has led to increased use of spinal ultrasound and MRI. Ultrasound is inexpensive, portable, and non-invasive, but false-positive findings may subsequently lead to MRI, which is costly, time-consuming, and may require anesthesia with associated risks.

This review highlights the relatively low diagnostic yield of imaging in isolated sacral dimples and emphasizes careful clinical judgment to reduce unnecessary investigations, costs, and patient risks.

5. Low Yield of Imaging with Isolated Sacral Dimples

Studies evaluating infants referred for cutaneous stigmata have demonstrated that sacral dimples are common but rarely associated with significant abnormalities requiring intervention. In a large cohort, most patients with sacral dimples had normal ultrasound findings, while only a small proportion showed abnormalities, and very few ultimately required surgery.

Other investigations have shown that the presence of multiple cutaneous findings significantly increases the likelihood of spinal dysraphism compared with isolated sacral dimples alone. This suggests that imaging has limited value in detecting occult abnormalities such as tethered cord, spinal lipoma, or fatty filum when no additional skin markers are present.

Therefore, isolated sacral dimples without associated abnormalities generally represent low-risk lesions with minimal diagnostic yield from imaging studies.

6. When to Obtain Ultrasound or MRI

When imaging is considered necessary, spinal ultrasound is generally preferred as the first-line modality because of its safety and lower risk profile compared with MRI. MRI should usually be reserved for cases with abnormal ultrasound findings, inconclusive results, or higher-risk clinical features.

Although ultrasound has good specificity for OSD, its sensitivity is variable. The likelihood of detecting significant abnormalities increases substantially when sacral dimples are accompanied by additional findings such as hairy patches, skin masses, pigmentation changes, asymmetrical gluteal clefts, or multiple lesions.

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Some prospective studies suggest that simple sacral dimples and minor gluteal cleft deviations may not require imaging at all. Therefore, imaging decisions should be individualized based on the overall clinical picture rather than the presence of a sacral dimple alone.

7. Conclusion

Sacral dimples are generally benign findings, particularly when present as isolated lesions without associated cutaneous abnormalities. Current evidence suggests that further imaging is usually unnecessary in these low-risk cases. Screening ultrasound is most appropriate when additional cutaneous markers are present or when clinical suspicion for OSD is increased. Judicious clinical assessment should guide management to avoid unnecessary imaging, costs, and potential risks to infants.

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