CASE REPORT

Traumatic intradiploic epidermoid cyst manifest as scalp papule

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SUMMARY

A posterior fossa intradiploic epidermoid cyst was removed from the calvarium of an otherwise healthy 34-year-old woman after work up for dizziness and blurry vision. The patient admitted to a history of a firm papule that occurred occasionally after a trauma sustained to the region years prior. The authors propose that trauma and cutaneous stigmata are potential associations with intradiploic epidermoid cysts.

BACKGROUND

Intradiploic epidermoid cysts (IEC) are rare lesions typically seen in children and young adults. Of all intracranial tumours, epidermoids encompass a mere 0.2–1.8%,^{1–4} and of those tumours, only 25% are intradiploic.² They are often insidious and go unnoticed for years, if ever discovered. The commonest presenting complaint is a painless scalp mass,² although they have been reported to infrequently cause symptoms related to mass effect such as headache, and more rarely cognitive or psychiatric symptoms.⁵ The pathophysiology of these lesions is classically attributed to congenital defects of neural tube closure, leading to ectodermal cell inclusions.^{2–6} Preliminary diagnoses are made pre-operatively based on radiographic imaging, although histopathology is required for definitive diagnosis.⁷ On CT, the lesions appear as a lytic hypodense regions with thinning of the inner and/or outer tables of the calvarium. MRI is the modality of choice for discerning these lesions from other skull lesions. Characteristics on MRI include hypointensity on T1-weighted imaging, hyperintensity on

T2-weighted imaging, often demonstrate restricted diffusion and do not contrast enhance.^{8–11} The imaging-based differential diagnosis includes dermoid cyst, lipoma, fibroma, metastases and sebaceous cyst.¹¹ These cysts are filled with keratin and lined with squamous epithelium.

To date, there are no reports of an IEC associated with a skin lesion such as a papule. There are rare reports of IECs associated with trauma. The proposed mechanism for this non-congenital IEC is inoculation of epidermal cells and subsequent inflammatory reaction.^{3–6–12–13} To the best of the authors' knowledge, only four cases of post-traumatic IEC have been reported.^{3–6–12–13}

CASE PRESENTATION

An otherwise healthy 34-year-old woman without significant past medical, social, or surgical history, was referred to the neurosurgery clinic by her family physician after a CT scan demonstrated a lytic lesion of the midline inferior occipital bone. Presenting complaints were dizziness and blurry vision. Palpation of the region demonstrated a firm but pliable non-mobile mass beneath the skin. There were no obvious skin lesions at the time of examination in clinic.

INVESTIGATIONS

Figure 1 depicts a CT scan demonstrating the lytic lesion in the posterior occipital bone measuring 3.5×4.2 cm with a thin partial rim of residual bone. There were no associated mass effect or inflammatory changes noted, suggestive of an indolent process. Three days later, an MRI demonstrated a

Figure 1 Lytic, peripherally calcified lesion encroaching on torcula with extension into soft tissues.

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Figure 2 MRI demonstrating restricted diffusion (top left), extension into soft tissues, displacement of confluence of sinuses (bottom left) and minimal if any capsular enhancement (bottom right).

Figure 3 Intraoperative photographs demonstrating thick capsule and bony destruction and infiltration of soft tissues.

Figure 4 Microscopy consistent with epidermoid cyst.

3.7×4.5×5.6 cm cystic mass posterior to the cerebellum and abutting the torcula. The lesion demonstrated intense restricted diffusion and minimal peripheral enhancement. Posteriorly, it extended into the soft tissues with disruption of the capsule ([figure 2](#)).

TREATMENT

The patient underwent resection of the mass due to persistent headaches and dizziness. Intraoperatively, no cutaneous stigmata were evident. The thick, pearlescent capsule ([figure 3](#)) was encountered deep to the dermis and subcutaneous fat rostrally, and deep to muscle caudally. Of note, the bony margins were extremely thin and brittle. The capsule was followed laterally and deep in an attempt to remove the entire lesion in one piece. Owing to the proximity to the cerebral sinuses and large size of the cyst, the surgeons opted to debulk from within. Once the capsule was opened a cream-coloured, chalky, oily material was expressed ([figure 3](#)) and easily aspirated with suction. Once the specimen was completely removed the area was irrigated in attempts to wash out any remaining epidermal cells from the cyst bed. The defect was then corrected with a titanium mesh and hydrocet bone cement cranioplasty.

OUTCOME AND FOLLOW-UP

A complete surgical resection was accomplished. Histological examination was consistent with epidermoid cyst. There was abundant keratinised debris and squamous epithelia lined the cystic space ([figure 4](#)). The patient made a full recovery with complete resolution of headaches and dizziness by her 2 month follow-up. There have been no recurrences of the scalp papule at 4 months postoperatively.

DISCUSSION

Four cases to date have demonstrated association between intradiploic epidermoid cysts and trauma,^{2 10 12 13} however, this is the first association between cutaneous stigmata and underlying calvarial lesions of this nature.

Learning points

- ▶ Intradiploic epidermoid cysts may be associated with scalp trauma.
- ▶ Cutaneous stigmata may be a sign of underlying calvarial lesions.
- ▶ Further work up is warranted in a patient presenting with cutaneous stigmata after head injury, especially in the setting of headaches or other neurologically-related clinical signs.

Competing interests None.

Patient consent Obtained.

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