New techniques in diagnosis

The role of ultrasound in the diagnosis of ganglion cysts

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Summary

Ganglion cysts are usually diagnosed clinically. We report three cases in which diagnostic doubt existed and in which ultrasound enabled the correct diagnosis to be made.

Keywords: ganglion cysts, ultrasound, diagnosis

Introduction

Ganglia are thin-walled cysts containing mucinous material. They develop in relation to joints or tendon sheaths, the hand and wrist being the most frequent sites of development.^{1,2} The diagnosis of these cysts is based mainly on clinical grounds and, until recently, imaging played no part in either diagnosis or assessment of such lesions. This report shows how ultrasound can be used to diagnose ganglia when clinical doubt exists.

Case 1

A 60-year-old man presented with an acutely painful swelling in the right radial area. There was clinical doubt as to whether this represented a radial artery aneurysm or a ganglion.

Ultrasound showed a 2 cm transonic lesion adherent to the radial artery (figure 1). On Doppler examination there was no flow within this cyst. At surgery a ganglion cyst was resected and the radial artery appeared normal.

Figure 1 An oval anechoic lesion with regular borders is demonstrated (open arrows) separate from the radial artery (black arrow)

Case 2

A 57-year-old man presented with an acutely tender pulsatile swelling on the radial side of the left wrist.

Ultrasound examination with a 5 MHz probe and stand-off showed a 2 cm transonic mass adjacent to but separate from the radial artery; a diagnosis of a ganglion cyst was made. The cyst was resected and the patient made an uneventful recovery.

Case 3

A 21-year-old truck driver presented with a four month history of numbness, tingling, and weakness of the right foot. A mobile nontender swelling measuring approximately 1 cm in diameter was noted on the lateral aspect of the right knee.

Ultrasound demonstrated a biloculated fluid collection overlying the fibular head and spreading laterally (figure 2). There was a septum evident in the larger lateral component. A ganglion cyst was diagnosed. Computed tomography (CT) confirmed the ultrasound findings but did not add any additional information.

At surgery a ganglion was noted very adherent to the common peroneal nerve. There was no communication with the superior tibiofibular joint. The ganglion was removed and the patient made a slow but complete recovery.

Discussion

There is a steadily increasing use of ultrasound in the diagnosis of soft tissue masses.^{3–5} However, until recently, imaging has played little part in the assessment of ganglion cysts which are usually readily diagnosed clinically. They

Figure 2 A well-defined biloculated anechoic lesion is noted overlying the fibular head

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most commonly present with soft tissue swelling. A local ache may also occur, particularly during the phase of rapid development.⁶ It is when ganglia have less typical presentations that ultrasound, we believe, has a particularly valuable role. In cases 1 and 2 an anterior wrist ganglion impinged on the radial artery presenting as a pulsatile wrist swelling. The distinction from an aneurysm of the radial artery, which is most often post-traumatic,⁷ is demonstrated on ultrasound (figure 1). These two patients did not require further investigations such as CT for confirmation of diagnosis. Indeed there is recent evidence that some soft tissue tumours detectable by ultrasound are undetectable by CT.⁸

Nerve palsies may uncommonly be caused by pressure from ganglia particularly of the lateral popliteal nerve at the neck of the fibula as in case 3. These have previously been described on CT,⁹ but CT did not add any extra information in our case. The ulnar nerve at the elbow

Learning points

- ganglion cysts may be confused with radial artery aneurysms
- where the diagnosis of a ganglion is in doubt clinically, consider ultrasound

or wrist and the median nerve resulting in the carpal tunnel syndrome may also be affected.⁶

The ganglion cyst appears on ultrasound as a round or oval anechoic mass with regular borders (figure 2). A communicating duct from the ganglion to the articular surface is occasionally seen but was not seen in any of our cases.²

Although the diagnosis of ganglion cysts is rarely a problem, we believe ultrasound allows a rapid confirmation of the diagnosis if it is in doubt clinically.

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Medical Anniversary

JOSEPH LISTER, 5 APRIL 1827

(Lord) Joseph Lister (1827–1912) was born in West Ham, London, son of a prosperous Quaker wine merchant who was also a notable microscopist. He graduated in medicine at University College, London (1852) and became FRCS in the same year. He became professor of surgery at Glasgow (1860), then Edinburgh (1869) and at King's College Hospital (1877). In 1865 his use of carbolic acid to combat wound infection changed the face of surgery forever. He became a baronet (1883) and peer (1897), PRS (1895). He died on 10 February 1912 and is buried in London in the West Hampstead cemetery.