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Bonney's blue dye for occult ganglion cyst removal: Technical Note

Ganglion cysts are soft tissue lesions most commonly found in the hand and wrist¹, accounting for 60-70% of soft-tissue masses found here². The majority of ganglion cysts are visible masses², but a significant minority are occult ganglia³. Ganglia can cause recurrent pain at rest and during loading activities³, limiting a patient's hand function and quality of life⁴.

MRI scans, and less frequently ultrasound scans, sometimes report small occult ganglia in patients with dorsal wrist pain⁴, usually in the third, fourth or fifth extensor compartment^{4,5}. The patient, and possibly also the physician, will then usually attribute the wrist pain to the occult ganglion once discovered. However, the ganglion may be a sign of underlying pathology, or simply be an incidental finding. Therefore, if surgical excision of the ganglion is planned, it is important to explain that the pain may persist after surgical removal. Furthermore, such small ganglia are usually difficult to locate, often increasing the operative time and the extent of surgical dissection.

We describe a technique using Bonney's blue dye which reduces the amount of dissection and helps rapidly localise the ganglion. Preoperatively, the patient identifies the most painful point. A 29-gauge hyperdermic needle on a 1.0 ml syringe is passed perpendicular to the skin directly down to the point indicated. A small volume (around 0.2 ml) of Bonney's blue is then injected whilst gradually withdrawing the needle, leaving a thin column of blue dye leading directly down to the most painful point; see Fig. 1. The surgery can then proceed through a smaller incision, with less dissection necessary, to locate the ganglion which also reduces the operative time. However, if a ganglion is not located in the region marked by the dye, but is found to be away from the site of maximal pain, then it is likely the ganglion was not the cause of the pain. In such cases, the surgeon is able to appropriately counsel the patient that, once the pain from surgery has resolved, the preoperative pain may still persist, and that further investigations or procedures may be required. The technique can be used with other surgical procedures that aim to localise the source of pain with the same benefits, such as removal of a small unpalpable foreign body.

In summary, the use of Bonney's blue dye for occult ganglion cyst removal can help reduce incision size, extent of dissection and operative time, as well as predicting the likely success of surgery based on location of the ganglion relative to the blue dye.

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Fig. 1. Dorsal wrist incision showing column of blue dye from skin down to occult ganglion at tip of scissors.

Declaration of Competing Interest

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S Gnanarajah (Shaene Gnanarajah) (SG)*

A Barabas (Anthony Barabas) (AB)

University of Cambridge, Hinchingbrooke Hospital, Plastic Surgery Parkway Hinchingbrooke, Huntingdon
PE29 6NT

*Corresponding Author. Gnanarajah. S (Shaene Gnanarajah) (SG), Address: 53 Cherry Hinton Road,
Cambridge, CB1 7BS, Telephone: 07534252173. Fax: N/A
E-mail address: sg724@cam.ac.uk (S. Gnanarajah (Shaene Gnanarajah) (SG))