

Photo Quiz

Slow-Growing Thumb Nodule

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FIGURE 1



FIGURE 2



An adult patient presented with a slow-growing “knot” on the volar aspect of the left thumb. The patient first noticed the nodule approximately one year earlier. On the day before presentation, a small amount of white drainage oozed from the nodule after minimal trauma to the overlying skin. There was minimal pain and no numbness, tingling, erythema, or warmth associated with the nodule. The patient had no previous related injury or foreign body in the affected area.

Physical examination revealed a small, firm nodule on the volar aspect of the interphalangeal joint of the left thumb. The overlying skin was broken, revealing pearl-gray material (*Figures 1 and 2*). Mild tenderness to palpation was present only over the area of disrupted skin. The patient had full extension of the interphalangeal joint, but flexion was slightly restricted because of the

mass. The patient had full strength with flexion of the interphalangeal and metacarpophalangeal joints. Hand radiographs were significant for soft tissue swelling at the joint. No bony infiltration was apparent.

Question

Based on the patient’s history and physical examination, which one of the following is the most likely diagnosis?

- A. Epidermal inclusion cyst.
- B. Ganglion cyst.
- C. Giant cell tumor of the tendon sheath.
- D. Schwannoma.
- E. Verruca vulgaris.

See the following page for discussion.

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Discussion

The answer is A: epidermal inclusion cyst. Also called epidermoid or epithelial inclusion cysts, these are benign, keratin-containing cysts with epidermal linings that can occur subcutaneously or be intratendinous or intraosseous.¹ The pearly, fibrous outer covering may be visible under taut skin or if the overlying tissue is disrupted. The cyst is usually preceded by minor trauma that results in epithelial cells being trapped deep in the dermis and forming the cyst.² The nodule is usually painless and slow-growing. On physical examination, epidermal inclusion cysts are mobile and firm and do not transilluminate. They can range in size from a few millimeters to several centimeters.^{1,2} The lesions are more common in men.

Epidermal inclusion cysts are typically diagnosed clinically; however, imaging studies, such as radiography, ultrasonography, and sometimes magnetic resonance imaging, have been suggested to help rule out more invasive tumors.¹⁻³ Pathologic evaluation following resection can confirm the diagnosis. No treatment is required unless the cyst causes functional impairment of the hands or fingers. If needed, treatment consists of surgical excision, but up to 11% of cysts may recur after excision.¹ The only other possible complication is local infection following traumatic rupture of the cyst or disruption of the overlying skin.²

Ganglion cysts are common and can arise from various joints and tendons, but they most often affect the wrists and fingers. They are the most common soft tissue tumors of the hand.² They may be traumatic or atraumatic and painful or painless, and they transilluminate. Ganglion cysts are most common in women younger than 40 years.² The contents of ganglion cysts are typically clear and gelatinous. They may be soft or firm and are generally mobile.^{2,3}

Giant cell tumors of the tendon sheath are benign lesions. They are the second most common tumor of the hand, typically affecting the volar aspect of the hand and radial three digits.³ They present as single, slow-growing nodules adjacent to distal or proximal interphalangeal joints and along tendons. Giant cell tumors of

SUMMARY TABLE

Condition	Characteristics
Epidermal inclusion cyst	Keratin-containing cyst with an epidermal lining and a pearly, fibrous outer covering; slow-growing, painless nodule that is mobile and firm; does not transilluminate
Ganglion cyst	Arises from joints or tendons and contains clear, gelatinous fluid; can be painful or painless and soft or firm and is generally mobile; transilluminates
Giant cell tumor of the tendon sheath	Slow-growing nodule adjacent to the distal or proximal interphalangeal joints and along tendons; firm and painless with limited mobility; does not transilluminate
Schwannoma	Painless, encapsulated, slow-growing nodule along a nerve; positive Tinel sign may be present
Verruca vulgaris (wart)	Sizable neoplasm that is associated with variants of human papillomavirus; more common at sites of repeated microtrauma, such as the digits

the tendon sheath are most common in women 30 to 50 years of age.³ The tumors are typically firm and painless, do not transilluminate, and have limited mobility.^{2,3}

Schwannomas are rare, benign nerve tumors of the hand that present as painless, encapsulated, slow-growing nodules.³ A positive Tinel sign (palpation of the nodule elicits radiating pain) may be present. Schwannomas arise from the Schwann cells surrounding the nerve and commonly present in individuals between 30 and 50 years of age.

Verrucae vulgaris, or warts, are very common and can present as sizable neoplasms on the skin. They are associated with variants of the human papillomavirus and are more common at sites of repeated microtrauma, such as the digits.²

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References

1. Lincoski CJ, Bush DC, Millon SJ. Epidermoid cysts in the hand. *J Hand Surg Eur Vol*. 2009;34(6):792-796.
2. Longhurst WD, Khachemoune A. An unknown mass: the differential diagnosis of digit tumors. *Int J Dermatol*. 2015; 54(11):1214-1225.
3. Mavrogenis AF, Panagopoulos GN, Angelini A, et al. Tumors of the hand. *Eur J Orthop Surg Traumatol*. 2017; 27(6):747-762. ■