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Tumors and tumor-like lesions of the hand

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ABSTRACT

Hand lesions, even when small, may present with pain and dysfunction. The majority are histopathologically benign. This study aimed to retrospectively investigate the histopathological results of masses excised from the hands and wrists of 146 patients between 2015 and 2017. Seventy-nine (54%) of the patients were female, and 67 (46%) were male, with a mean age of 43 years (range 0–84). Based on histopathological findings, 7 cases (4.8%) were classified as malignant, 127 cases (86.9%) as benign, 11 cases (7.5%) as premalignant, and 1 case (0.8%) as a mesenchymal tumour of unspecified type. The two most frequent tumours were pyogenic granulomas and giant cell tumours of the tendon sheath (GCTTS), while ganglion cysts were the most common lesions, occurring more frequently in women of advanced age. Awareness of the histopathological spectrum and characteristics of hand lesions can prevent misdiagnoses and assist in appropriate surgical management.

Key words: Hand, wrist, tumor, lesion, histopathology.

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Introduction

The anatomy of the hand and fingers is uniquely dense in terms of joints, tendons, and associated structures, second only to the feet. Consequently, lesions in this region are more likely to occur [1]. Diagnosing and treating these lesions often require careful assessment, and most studies on the subject rely on retrospective analyses or small series. Although the majority of hand lesions are histopathologically benign [2–6], malignant non-cutaneous hand tumors are rare, with an incidence of 1–2% [7–9]. Secondary metastases are similarly uncommon, with an incidence of 3–5% [8]. The three most common soft tissue tumors or tumour-like lesions in the hand are ganglion cysts, giant cell tumors of the tendon sheath (GCTTS), and epidermal inclusion cysts [4,10–12]. This study aimed to examine the frequency of excised hand and wrist masses and compare the findings with the existing literature over a three-year period.

Results and Discussion

The histopathological results of 146 excised hand and wrist masses from 2015 to 2017 were retrospectively analyzed. Animal and Human Rights All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards.

Data on frequency, sex distribution, origin, and histopathological features of the tumors were evaluated.

Of the 146 patients, 79 (54%) were female, and 67 (46%) were male, with a mean age of 43 years (range 0–84). Based on histopathology, 7 cases (4.8%) were malignant, 127 cases (86.9%) were benign, 11 cases (7.5%) were premalignant, and 1 case (0.8%) was a mesenchymal tumor of unspecified type. Among the lesions, 83 were of soft tissue origin, 61 were skin-derived, and 2 originated from bone. All malignant and premalignant lesions were of skin origin.

According to the frequency of histopathological diagnosis; 23 (15.75%) pyogenic granuloma, 22 (15.07%) ganglion cyst, 14 (9.59%) giant cell tumor of tendon sheath (GCTTS), 14 (9.59%) verruca vulgaris, 7 (4.79%) epidermal cyst, 6 (4.11%) keratoacanthoma, 6(%4.11) callus, 4 (%2.74) schwannoma, 4 (%2.74) blue nevus, 3 (2.05%) acral fibrokeratoma, 3(2.05%) actinic keratosis, 3 (2.05%) fibroma, 3(2.05%) polydactyly, 3(2.05%) SCC, 2(1.37%) bowen's disease, 2 (1.37%) hemangioma, 2 (%1.37) neuroma, 2(1.37%) papillary endothelial hyperplasia, 2 (1.37%) porokeratosis mibelli, 2(1.37%) punctate keratoderma, 2 (1.37%) rheumatoid nodule were detected.

Additional rare lesions (0.68% each) included hydradenoma, actinic keratosis with suspected microinvasion, angiomyolipoma, arteriovenous malformation (AVM), basosquamous carcinoma, dermatofibroma, fibroepithelial polyp, hyperkeratotic papilloma, keratoacanthoma with suspected microinvasion, cutaneous horn, mesenchymal tumor (unspecified), microinvasive SCC, neurofibroma, chondroma, seborrhoeic keratosis, subungual exocytosis, and venous malformation.

Hand tumors can be classified based on their tissue of origin, including the epidermis, dermis, sweat glands, fat, fascia, vessels, nerves, muscles, and bone [13]. Ganglion cysts are the most common cause of focal masses in the hand, while GCTTS and lymphomas are among the most prevalent tumors [2].

Trauma-related pyogenic granulomas are the most prevalent vascular lesions and rank as the fourth most common hand tumors, with a prevalence of 2–6% [4]. GCTTS, also known as pigmented villonodular tenosynovitis or fibrous xanthoma, is a benign soft tissue tumor and the second most common tumor found in the hand [14]. It typically occurs in the third or fourth decade of life, with a female predominance (2:1). In this study, the majority of diagnosed lesions were found to be trauma-associated tumors (most commonly vascular originated)/tumor-like lesions. The two most common tumors were pyogenic granuloma (F:12 M:11, mean age: F/M:1.1/1) and GCTTS (F:9 M:5, mean age: F/M:1.8/1).

Ganglion cysts, also referred to as mucous cysts or hygromas, represent the most prevalent non-traumatic soft tissue lesion of the hand [16]. They predominantly affect the dorsum of the wrist. In this study, ganglion cysts were the most frequent lesions (14 females, 8 males; mean ratio: 1.8:1), with a higher incidence observed in older women.

Primary malignant tumors were identified as 3 SCC, 2 Bowen's disease, 1 Basosquamous carcinoma, 1 Microinvasive SCC.

Hand and wrist neoplasms and tumor-like lesions encompass a wide range of diagnoses. Clinical diagnosis can be challenging due to the anatomical complexity of the hand, where various tissues are located in close proximity. Consequently, histopathological examination is essential to ensure accurate diagnosis and proper treatment. Commonly employed

imaging techniques include plain radiography, magnetic resonance imaging (MRI), and ultrasound. Computed tomography (CT) and nuclear imaging are less frequently used but may have specific applications [17]. While most lesions are straightforward to diagnose histopathologically, rare tumor-like lesions, particularly of soft tissue origin, may mimic sarcomas and create diagnostic difficulties [18]. Awareness of the histopathological spectrum and characteristics of hand lesions is crucial to avoid misdiagnosis and facilitate appropriate surgical management. Most benign tumors are treated with excision followed by defect reconstruction. In cases of malignancy, a multidisciplinary approach is essential to optimize outcomes.

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