TPM Vol. 32, No. S3, 2025
ISSN: 1972-6325
https://www.tpmap.org/

Open Access

UNMASKING THE UNUSUAL:EIP ANOMALIES MASQUERADING AS GANGLION

SURYA RAO RAO VENKATA MAHIPATHY[1], JAWHARUN NISA[2]*, ANAND PRASATH JAYACHANDIRAN[3], SURESH RAJENDRAN[4], ALAGAR RAJA DURAIRAJ[5], DR. AKILAN.R[6]

[1]PROFESSOR & HEAD, DEPARTMENT OF PLASTIC & RECONSTRUCTIVE SURGERY, SAVEETHA MEDICAL COLLEGE & HOSPITAL, SAVEETHA INSTITUTE OF MEDICAL AND TECHNICAL SCIENCES, THANDALAM, KANCHIPURAM DISTRICT, TAMILNADU, INDIA.

[2]RESIDENT, DEPARTMENT OF PLASTIC & RECONSTRUCTIVE SURGERY, SAVEETHA MEDICAL COLLEGE & HOSPITAL, SAVEETHA INSTITUTE OF MEDICAL AND TECHNICAL SCIENCES, THANDALAM, KANCHIPURAM DISTRICT, TAMILNADU, INDIA.

[3]ASSOCIATE PROFESSOR, DEPARTMENT OF PLASTIC & RECONSTRUCTIVE SURGERY, SAVEETHA MEDICAL COLLEGE & HOSPITAL, SAVEETHA INSTITUTE OF MEDICAL AND TECHNICAL SCIENCES, THANDALAM, KANCHIPURAM DISTRICT, TAMILNADU, INDIA.

[4]ASSOCIATE PROFESSOR, DEPARTMENT OF PLASTIC & RECONSTRUCTIVE SURGERY, SAVEETHA MEDICAL COLLEGE & HOSPITAL, SAVEETHA INSTITUTE OF MEDICAL AND TECHNICAL SCIENCES, THANDALAM, KANCHIPURAM DISTRICT, TAMILNADU, INDIA.

[5]PROFESSOR, DEPARTMENT OF PLASTIC & RECONSTRUCTIVE SURGERY, SAVEETHA MEDICAL COLLEGE & HOSPITAL, SAVEETHA INSTITUTE OF MEDICAL AND TECHNICAL SCIENCES, THANDALAM, KANCHIPURAM DISTRICT, TAMILNADU, INDIA.

[6]SENIOR LECTURER, DEPARTMENT OF ORAL& MAXILLOFACIAL SURGERY , SREE BALAJI DENTAL COLLEGE & HOSPITAL, CHENNAI, INDIA

*CORRESPONDING AUTHOR: JAWHARUN NISA (EMAIL: JAWHARUNNISA@GMAIL.COM)

Abstract

These muscle anomalies are of rare occurrence; however, when present, they can mimic other conditions like ganglia, particularly Anomalous extensor muscles of the hand, specifically Extensor Indicis Proprius (EIP)(1). We describe a rare anomalous epiphanic (EIP) muscle that clinically presented as a ganglion cyst in a 40 year old male who presented with a painless dorsal wrist swelling for 6 months. The muscle was truncated through excision of its middle third, with resolution of symptoms. Understanding the presence of such anatomical variation is crucial for the diagnose and management of handpathologies.

Keywords: Dorsal wrist pain, wrist swelling, ganglion, Extensor Indicis Proprius, Anomalous extensor muscle

INTRODUCTION

Swelling associated with dorsal wrist pain is often associated with ganglia, but pain attributable to the Extensor Indicis Proprius (EIP), Extensor Digitorum Brevis Manus (EDBM) and other muscles should also be considered. Here we report a rare case of a ganglion-appearing anomalous EIP muscle that presented with clinical confusion and required surgical evaluation for diagnosis.

Case Report

A 40-year-old man was diagnosed with a painless swelling over the dorsum of the right wrist, which had gradually increased in size over the preceding 6 months. There was no history of trauma or surgery to the wrist. The physical examination demonstrated a 2 cm × 2 cm firm, non-tender, mobile mass near the radiocarpal joint. Mobility was improved in the transverse than longitudinal direction, and there was no neurovascular deficits or restriction of wrist movement.A clinical diagnosis of a ganglion was made, but pre-operative ultrasound demonstrated a hypoechoic mass without definitive features of a ganglion cyst. Methods: Surgical exploration was performed under region anesthesia, finding an abnormal EIP muscle instead of the suspected ganglion. The muscle from the middle third of the EIP was excised and the wound was sutured. The postoperative course was unremarkable, and the patient had good symptoms resolution.

Fig-1 Pre op marking

Fig -2 Intraoperative identification- EIP muscle

Fig-3 Intraoperative image

Fig -4 Immediate post op image

DISCUSSION

Accessory muscles of the hand such as extensor indicis proprius (EIP), extensor digitorum brevis manus (EDBM), extensor mediiproprius (EMP), and extensor indicis et mediicommunis (EIMC) have an extremely rare occurrence(2). These anomalies are frequently asymptomatic; however, they can become clinically significant if impingement occurs when they can manifest as dorsal wrist pain. These variations are often confused with other pathological entities such as ganglia, tendon sheath cyst and synovial cyst.

A dorsal wrist mass was misdiagnosed as a ganglion in our patient, which is often the case. Preoperative ultrasound fails to provide conclusive information at times, particularly when the differential includes ganglia

and aberrant muscles(3). The definitive diagnosis was an aberrant EIP muscle extending distally beyond the extensor retinaculum that was confirmed upon surgical exploration.

Research has demonstrated that dorsal wrist pain due to anomalous extensor muscles is most often provoked during active resistive extension of the index finger, a hallmark of EIP syndrome. Nonetheless, conservative treatment options, including rest, splinting, and steroid injections are often first-mode management. Surgical therapy, which can involve decompression or resection of the anomalous muscle, is reserved for patients who are refractory to conservative measures.

The anomalous muscle was large enough in this patient to create a mass-like lesion on the dorsum of the hand. It acted as normal muscle, and no other pathologic processes like synovitis and tenosynovial proliferation were found. Notably, complete excision of the anomalous EIP muscle was not pursued, because it could have jeopardized index finger independence, which is vital for hand function(4).

Abnormal muscles may present from evolutionary variations in the deep aspect of the forearm extensor muscle mass which are known to change dramatically between species. Studies of comparative anatomy suggest that although the superficial and to a lesser extent the radial groupings of muscles are comparatively stable, the deeper portion of the hand, including the EIP, is quite variable.(5)

This serves as a reminder of the importance of these two anomalies as misdiagnosis may result in ineffective treatment. Ultrasonography is useful to identify ganglia, but it may not always provide a final diagnosis, as in this case. Surgical exploration is the gold standard for both diagnosis confirmation and treatment of the disease.

Dorsal wrist pain due to anomalous muscles requires: intermittent symptoms with exacerbation by repetitive activities (1), reproduction of pain on active resistive extension of the digit (2), attended surgical or imaging confirmation of a muscular anomaly (3), and the absence of secondary disease such as ganglion cysts (4). In conclusion, the symptoms develop as a result of tumor compression, which should be relieved by surgical decompression, as seen in this case.

CONCLUSION

Recognition of anatomic variations of the extensor tendons such as EIP anomaly is significant in cases of dorsal wrist pain. Ultrasonography may help in making the diagnosis, but the definitive diagnosis and management are by way of surgical exploration. Knowledge of such variations is particularly important for proper management and avoidance of misdiagnosis.

REFERENCES

1. Anomalous extensor muscles of the hand: A reviewTan, Swee T. et al.Journal of Hand Surgery, Volume 24, Issue 3, 449 – 455.
2. Suwal S, Katwal S, Chataut D, Lamichhane S, Bhusal A, Bhandari S. Lipoma arborescens in the dorsum of the hand: a case report and a comprehensive review. Ann Med Surg (Lond). 2024 Mar 4;86(4):2305-2308. doi: 10.1097/MS9.0000000000001884. PMID: 38576963; PMCID: PMC10990293.
3. Chen CK, Wu HT, Chiou HJ, Wei CJ, Yen CH, Chang CY, Chen WM. Differentiating benign and malignant soft tissue masses by magnetic resonance imaging: role of tissue component analysis. J Chin Med Assoc. 2009 Apr;72(4):194-201. doi: 10.1016/S1726-4901(09)70053-X. PMID: 19372075.
4. Kim CH. Anomalous extensor indicis proprius muscle. Arch Plast Surg. 2013 Jan;40(1):79-81. doi: 10.5999/aps.2013.40.1.79. Epub 2013 Jan 14. PMID: 23362489; PMCID: PMC3556543.
5. .Lakshmi, Gaddam Vijaya1,; Michael, Stelin Agnes1. Morphological Study of Anomalous Deep Extensors of the Hand. National Journal of Clinical Anatomy 8(1):p 3-9, Jan–Mar 2019. | DOI: 10.1055/s-0039-1688509