RADICAL EXCISION FOR DORSAL WRIST GANGLIA

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SUMMARY :

Purpose : *To compare the efficiacy of radical excision with other surgical techniques for dorsal wrist ganglia.* ***Methods:*** *During the last five years, 42 dorsal wrist ganglia were treated with radical surgical excision. Mean patient age was 28.9 and 76 % were women. Surgical exposure was achieved through a transverse skin incision over the tumor, preserving the cutaneous branch of radial nerve. The dissection was carried out down to the root of the ganglion which is usually associated with scapholunate joint. The tumor was then excised with the part of the joint capsule adharent to it. No attempt was made for capsular defect repair. Patients were encouraged for early postoperative active motions.* ***Results :*** *Thirtynine of the ganglia originated from the scapholunate ligament, two of them from the extensor tendon sheath, and no definite capsule attachment was found for the remaining one. All lesions except two were removed intact without any rupture. There was no sensory loss on the hand dorsum of any of the patients. The range of wrist movement returned to normal limits in all patients. Four recurrences (9.5 %) were observed during the follow-up period and they were treated successfully in another setting.* ***Conclusion :*** *Ganglia which can be detected by simple physical examination are 50 to 70 % of all soft tissue tumors of this anatomic location. However, due to improper treatments, recurrences and sensorial loss on the dorsum of the hand are not uncommon. We conclude that a bloodless field, loop magnification, radical excision, and early mobilization are the prerequisites to achieve success in surgical treatment. Otherwise, recurrences up to 50 % can be devastating with increased morbidity.*

Key Words : *Ganglion, Dorsal Wrist, Radical Excision.*

INTRODUCTION

Ganglia are the most common soft tissue tumors of the hand and wrist, comprising 50% to 70% of all tumors of this anatomic area (1, 2). These soft mucin filled cysts are usually attached to the adjacent underlying joint capsule, tendon or tendon sheath. They are usually solitary and can affect almost any joint of the hand and wrist, but the dorsum of the wrist is the most common localization (Fig. 1). Ganglia are most prevalent during the second and third decades of life and affect women more frequently than men. It appears with equal frequency in the dominant and assistive hand (1, 2). Their cosmetic presence, pain and weakness are the usual symptoms that promote the patient for treatment. Non surgical treatments such as digital pressure, steroid or lidocaine injections,

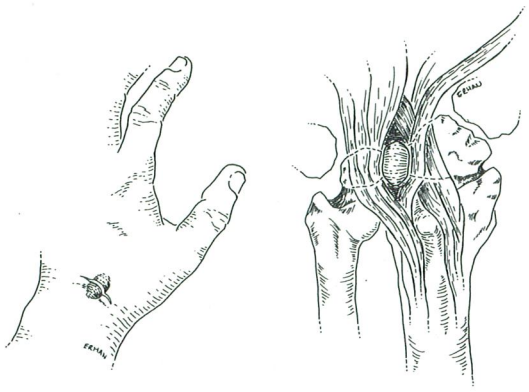

Fig - 1 : A dorsal wrist ganglion: The most common ganglion of the hand and wrist. Preferred incision for dorsal wrist ganglion which is usually associated with scapholunate ligament.

simple aspiration, heat, radiation, sclerotheraphy, shown to be either ineffective with recurrence rates as high as 60 % or have limited success (3-7). Surgical techniques like transfixing the ganglion with a heavy suture, puncturing the cyst wall, partial excisions and total excisions have been tried (8-11). Among different surgical modalities, radical excision of the ganglion and related part of the joint capsule seems to have lower recurrence rates and gives the most reliable results (12,13). In this study the results of radical excision for dorsal wrist ganglia in 42 cases are presented and the superiority of this approach to other treatment modalities is emphasized.

PATIENTS AND METHODS

Between 1992 and 1997, 65 patients were operated on for their hand and wrist ganglia (Table 1). Among all, 42 were dorsal wrist ganglia and they were all treated with radical surgical excision . Age at operation ranged from 13 to 49 years, with a mean of 28.9 years. Thirty-two (76 %) of the patients were female and 10 of them were male. There was no difference between right and left wrist (18 right and 14 left) for lesion localization. The major complaint of the patients was disfigurement which was followed by pain (64.2 % and 35.8 %, respectively). Ganglia are excised in a complete surgical suite under local anesthesia and ocular loupes for magnification are used where necessary. Surgical exposure is maintained by a transverse

	Number of Patients	%
Dorsal Wrist	42	64.6
Volar Wrist	9	13.8
Volar Retinacular	4	6.2
Proximal Interphalangeal Joint	4	6.2
Distal Interphalangeal Joint	6	9.2
TOTAL	65	100

Table 1 : Localization of ganglia in 65 patients.

skin incision over the ganglia (Fig. 2). Special attention is taken to identify the cutaneous branch of radial nerve and any injury was avoided as it can cause postoperative sensorial loss. The dissection is carried out down to the root of the ganglion which is usually associated with scapholunate joint and extensor tendon sheath. With the wrist in volar flexion, joint capsule is opened, and ganglion and related part of the joint capsule or the tendon sheath are excised. During the surgical procedure ganglion rupture is tried to be avoided as it makes identification of the ligamentous and capsular attachments difficult. No attempt is made for capsular defect repair as it limits postoperative range of motion. After meticulous hemostasis and saline irrigation, skin is closed and a bulky dressing is applied. Patients were encouraged for early postoperative active motions especially for volar flexion.

RESULTS

Thirtynine of the ganglia originated from scapholunate ligament and two of them were from

Fig - 2A : A patient with dorsal wrist ganglion.

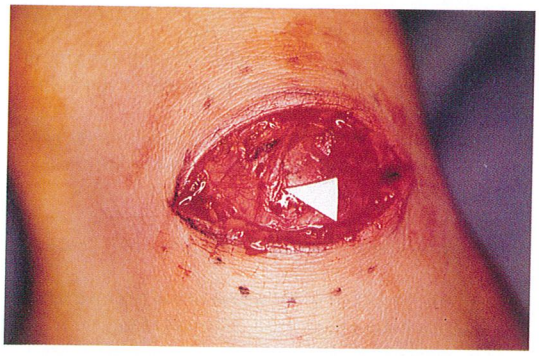

Fig - 2B : Via a transverse incision, the cutaneous branch of radial nerve and underlying ganglia were exposed.

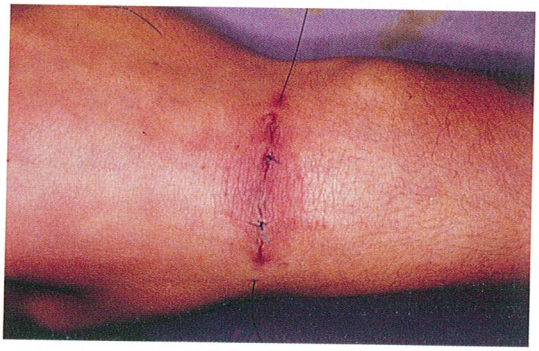

Fig - 2D :Following radical excision the skin was closed.

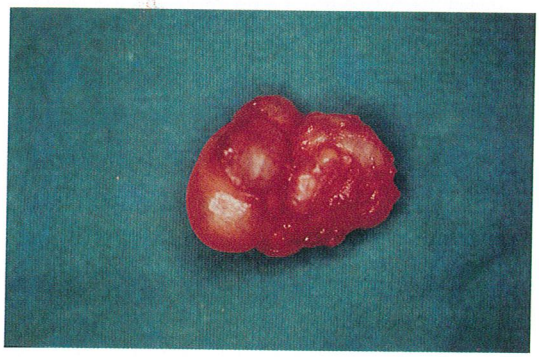

Fig - 2C : Avoiding rupture, ganglia was resected en bloc with its joint attachment.

extensor tendon sheath; no definite capsule attachment was found for the remaining one. All lesions except two were removed intact without any rupture. No wound infections, hematoma, sensory loss or other serious complications were seen. Relief of symptoms was achieved in the majority of patients and only three patients had transient mild pain after excision of the ganglia. The range of wrist movement in all patients was returned to normal limits. There were four (9.8 %) recurrences during a mean follow-up period of 2 years. These four cases were reoperated and treated successfully in another sitting with same surgical principles.

DISCUSSION

Ganglia which can be detected by simple physical examination comprise 50 to 70 % of all soft tissue tumors of this anatomic location (1, 2). These cystic masses contain mucinous material and closely associated with a joint capsule or tendon sheath. The origin of the ganglion has been debated since the first description of this disorder by Hipocrates. Although, many other theories exist, currently the most popular explanation for the formation of ganglia is that proposed by Soren in 1966 (14). Ganglia are described as degenerative structures whose liquid content represented the end products of myxoid change in collagen and/or connective tissue and this degeneration is believed to be due to metaplasia or trauma. Whatever the etiologic cause, ganglia can be treated by either operative or nonoperative techniques and pain, weakness and disfigurement are the indications. Nonoperative modalities are considered as either ineffective or unreliable (1-7). Therefore, symptomatic patients should have surgical interventions (3-7). However, due to improper treatments, recurrences and sensorial loss on the dorsum of the hand are not uncommon after surgery (8-11). Angelides (1) mentioned the importance of radical excision for dorsal wrist ganglia. Clay and Clement (12) also suggested that this approach gives the most reliable and successful results. Meanwhile, this technique has also some drawbacks that could alter the surgical outcome. Dorsal ganglia are approached by a transverse

incision which is just over the ganglion which usually jeopardize the cutaneous branch of the radial nerve. If this branch is injured during surgery, patients may suffer varying degrees of sensorial loss on the dorsum of the hand. Therefore, occular loop or surgical microscope should be preferred during the surgery. We identified the cutaneous branch of radial nerve and avoid any injury in all our cases. Thus none of our patients complained of any sensorial change or loss during the postoperative period.

Removal of ganglia with the adherent joint capsule is another important fact that aids in decreasing the recurrence rate (1, 13). During the surgical procedure ganglion rupture should be avoided. Otherwise, identification of the ligamentous and capsular attachments become difficult and this could result in inadequate excisions which is possibly the main cause of recurrences. We were able to remove 40 of the ganglia intact and two of them were ruptured. These two cases recurred during the follow-up and needed secondary surgery.

The success rate of 90.5 % achieved with radical excision in this study is comparable to other reports in the literature (1, 2). It is concluded that radical excision is a safe and reliable procedure in the surgical treatment of dorsal wrist ganglia. In addition, a bloodless field by meticulous hemostasis, loop magnification, and early mobilization are the prerequisites to increase success.

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