

PROGNOSIS OF WRIST GANGLION OPERATIONS

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A retrospective study was conducted to evaluate the results of treatment of 40 wrist ganglia operated under local anesthesia over four years. The mean follow-up period was 27 months (range 6-48 months). There were 24 dorsal and 16 volar ganglia. The mean complication rate was 56% for volar ganglia, 12.5% for dorsal ganglia, and the difference was significant ($p < 0.05$). The recurrence rates were 31.2% and 8.3%, respectively (mean 17.5%). There was evidence of nerve damage to the superficial branch of the radial nerve in one patient (dorsal cyst) and to the palmar cutaneous branch of the median nerve in two patients (volar cysts). The mean nerve injury rate was 7.5%. In two patients with volar ganglia, the palmar superficial branch of the radial artery was lacerated and had to be ligated. The significantly higher complication rate after excision of volar ganglia in contrast to dorsal ones might indicate that the former should be approached more carefully in contrast to dorsal ones and preferably by a senior surgeon.

Key Words : Wrist ; ganglion.

Mots-clés : Kyste arthro-synovial ; poignet.

INTRODUCTION

Ganglion cysts are the most common soft tissue tumors of the hand and wrist (3, 18). Volar wrist ganglia are less frequent than dorsal ganglia, constituting 18-20% of all ganglion cysts around the wrist joint (5,8). Treatment options include observation, aspiration and surgical excision (15). Surgical excision is usually seen as a minor operation, but there are many unfavorable reports for both dorsal and volar ganglia regarding the recurrence rate and other complications (8, 9, 11, 17).

Some reports indicate a worse prognosis for volar ganglia after surgical treatment (8). The aim of this study was to compare the results of surgical excision of volar and dorsal ganglia.

MATERIALS AND METHODS

Patient charts and operating records of Kocaeli University Hospital (1995-1999) were reviewed. Patients who had undergone ganglion excision from the wrist joint were requested to return for a follow-up evaluation. Exclusion criteria from the study were: simultaneous or previous surgery for other pathologies like trigger finger or carpal tunnel release on the ipsilateral hand, revision surgery for recurrence and previous conservative treatment attempts like aspiration. All operations were done on an outpatient basis. They were performed under local anesthesia with the use of a tourniquet. The latter was released before closure for better hemostasis. After dissection of the cyst and identification of the joint of origin, the cyst and its capsular attachments were resected. No patients requested additional sedation or analgesia. We did not use any kind of immobilization following surgery. A bulky compressive dressing was applied for 2 weeks.

Charts were evaluated for hand dominance, patient occupation, nature and length of symptoms, history of trauma and location of the ganglion. Postoperative evaluation was done for the following criteria: range of motion of both wrists, presence of wrist pain, recurrence of ganglion, any alteration in sensibility after the sur-

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gery, emergence of additional hand pathologies like carpal tunnel or triggering and assessment of vascular patency. Postoperative range of motion was compared with the opposite side, since none of the patients had a history of a contralateral wrist problem or surgery. After a standard physical examination, patients suspected to have carpal tunnel syndrome were sent for nerve conduction tests. Vascular patency was tested by Allen's test for both radial and ulnar arteries.

Statistical analysis was done using Fisher's exact test. A p-value <0.05 was considered statistically significant.

RESULTS

Fifty six charts were evaluated. Four patients were operated on simultaneously for additional hand pathology. Another four had a history of either aspiration or previous surgery for a ganglion at the same location. They were excluded from the study. Of 48 patients, 40 were available for a follow-up evaluation (table I).

There were 24 dorsal and 16 volar ganglia. The mean follow-up period was 27 months (range : 6 to 48 months). Twenty six had right sided ganglia (65%); there was no bilateral involvement. The mean age at operation was 30.2 years (range : 16 to 60 years). Twenty eight of the patients were female (70%), and 30 of them were either employed or working at home. Table I also shows the duration of symptoms, previous history of trauma and the localization of the ganglia.

The overall complication rate was 56% for volar ganglion cysts, in contrast to 12.5% for dorsal ganglia (table II). The difference was significant ($p < 0.05$). The recurrence rate was 17.5% ; 31.2% on volar and 8.3% on dorsal ganglia. The difference was not significant ($p < 0.09$). Of the 7 patients with recurrence, two had revision surgery. Both of them had volar cysts, and the origin of the cyst appeared to be the scaphotrapezial joint. They had not recurred at last follow-up at 8 months. There was evidence of nerve damage to the superficial branch of the radial nerve in one patient (dorsal) and to the palmar cutaneous branch of the median nerve in two patients (volar). The overall rate for nerve injury was 7.5%. All three patients refused to have additional operation for neuromas. In two patients

(14.3%) with volar ganglia, the palmar superficial branch of the radial artery was lacerated and ligated. At follow-up, vascular patencies of all patients were found to be normal. Five patients had persistent discomfort and pain following surgery. One patient with persistent discomfort was found to have developed scapholunate instability for unknown reasons but refused further treatment. Three patients were found to have carpal tunnel syndrome at follow-up examination, and surgical decompression was performed.

DISCUSSION

Ganglion cysts are the most common soft tissue tumors of the hand and wrist, (3, 18) accounting for 50 to 70% of masses discovered (1). They most frequently arise from a joint capsule or tendon sheath (15, 18). The wrist joint is the most common site for a ganglion, although it may arise from almost every joint of the hand (1).

Physicians frequently see patients seeking advice for a bump that appeared at the wrist joint. Treatment options include observation, aspiration or puncture and surgical excision (15). Observation ('careful neglect') may be acceptable in most instances, as there are many reports in the literature indicating the drawbacks of both conservative and surgical methods (8, 9, 11, 12, 14, 16, 17). Conservative treatment methods like aspiration and puncture have a high recurrence rate, usually more than 60% (3, 12, 14, 16, 17). Their advantages over surgical excision are lower cost and absence of scar formation (1). Recent articles also report a lower incidence of requests for surgery after aspiration, even though the result was not successful (14, 16). They suggest that aspiration allays fears of malignancy (14, 16).

Indications for surgical treatment include pain, interference with activity, nerve compression and, more importantly, patient request (1, 3, 15). There are many articles in the literature reporting both favorable and unfavorable results after surgical treatment (2, 5, 6, 8, 9, 11, 17).

Some articles also report that the volar location of the ganglia conveys a worse prognosis than the dorsal location (8). This is attributed to a number of

Table I. — Preoperative demographic data.
There was no significant difference between volar and dorsal groups regarding factors examined.

| Localization | N | Gender | | Age | Side | | Employment | | Duration of Symptoms (in months) | History of Trauma (number of cases) | Localization (volar) | | Localization (dorsal) | |
|--------------|----|--------|----|-----------------|------|----|------------|----|----------------------------------|-------------------------------------|----------------------|----|-----------------------|----|
| | | M | F | | R | L | Yes | No | | | ST | RS | SL | SC |
| Dorsal | 24 | 7 | 17 | 16-52 (30.2) | 15 | 9 | 18 | 6 | 13 (2-40) | 4 | - | - | 20 | 4 |
| Volar | 16 | 5 | 11 | 17-60 (29.2) | 11 | 5 | 12 | 4 | 11 (3-36) | 2 | 6 | 10 | - | - |
| Total | 40 | 12 | 28 | 16-60 (30.2) | 26 | 14 | 30 | 10 | 12 (2-40) | 6 | 6 | 10 | 20 | 4 |

N: Number.
M: Male, F: Female.
R: Right, L: Left.
ST: Scaphotrapezial joint, RS: Radioscaphoid joint.
SL: Scapholunate joint, SC: Scaphocapitate joint.

Table II. — Follow-up results show a significantly higher complication rate after volar ganglia excision compared to dorsal.

| Localization | Dorsal | Volar | Total | Significance (p) |
|---|-------------|-------------|-------------|-------------------------------|
| Number of Patients | 24 | 16 | 40 | - |
| Follow-up in months | 6-48 (29.1) | 6-48 (25.7) | 6-48 (26.9) | ns |
| Recurrence (%) | 2 (8.3%) | 5 (31.2%) | 7 (17.5%) | 0.09 not quite significant |
| Nerve injury (%) | 1 (3.8%) | 2 (14.3%) | 3 (7.5%) | ns |
| Vascular injury (%) | 0 | 2 (14.3%) | 2 (5%) | ns |
| Overall complication rate (%) | 3 (12.5%) | 9 (56%) | 12 (30%) | 0.005 significant |
| Decrease in motion more than 20° compared to other site (n) | 3 (11.5%) | 2 (14.3%) | 5 (12.5%) | ns |
| Wrist pain (n) | 3 (11.5%) | 2 (14.3%) | 5 (12.5%) | ns |
| Problem in vascular patency | - | - | - | - |
| Additional hand pathology emerged during follow-up (n) | 2 | 1 | 3 | ns |

ns: not significant.
n: number of patients.

factors, like the close proximity of volar ganglia to important anatomic structures like the radial artery and the palmar cutaneous branch of the median nerve and the number of different origins of these ganglia (6, 8). We had two patients with laceration of the palmar superficial branch of the radial artery. Rosson and Walker (13) emphasized the risk of damage to the radial artery, and Lister and Smith (10) described a method to prevent damage to it. There is also a substantial risk of damage to neurological structures. (4). The palmar cutaneous brach

of the median nerve runs in close proximity to the ganglia in this region (7). Although our incidence of nerve lesions compares favorably with other reports, identification of the risk of nerve injury and appropriate precautions are mandatory (8).

In this study, the recurrence rate of volar ganglia after surgical excision is nearly fourfold that of dorsal ganglia. This is attributed to the fact that volar wrist ganglia located in the same region close to the radial artery and palmaris longus tendon in fact arise from two different joints; the scaphotra-

pezial and radioscaphoid joint (6,8). It is said that volar ganglia that originate from the scaphotrapezial joint may be misdiagnosed as having a scapholunate origin and may be left intact (8). Two of the 5 patients who had recurrence of a volar ganglion accepted surgery and in both cases the ganglion was located at the scaphotrapezial joint.

The significantly higher complication rate after excision of volar ganglia in contrast to dorsal ones might indicate that the former should be approached more carefully and preferably by a senior surgeon.

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SAMENVATTING

H. GÜNDEŞ, Y. ÇIRPICI, A. ŞARLAK, S. MÜEZZINOGLU. Prognose na chirurgische behandeling van polskysten.

Teneinde het resultaat te bestuderen van heilkundige benadering, onder lokale anesthesie, van polskyste, werd een retrospectieve studie opgezet omtrent 40 gevallen, gezien in een tijdspanne van 4 jaar. De gemiddelde follow-up periode bedroeg 27 maanden (uiterste waarden 6 en 48 maanden). Er werden 24 dorsale en 16 volaire kysten verwijderd. Verwikkelingen werden genoteerd bij 56% van de volaire kysten en bij 12,5% van de dorsale kysten; het verschil tussen beiden was significant ($p < 0,05$). Herval deed zich voor in 31,2% en 8,3% van de gevallen, respectievelijk (gemiddeld 17,5%). Bij één patiënt was er een letsel van ramus superficialis n. radialis na een ingreep voor een dorsale kyste; bij twee patiënten een letsel van ramus palmaris n. mediani, na een ingreep voor een volaire kyste. Er trad dus een zenuwletsel op bij 7,5% van de patiënten. Bij twee patiënten met een volaire kyste werd ramus palmaris superficialis a. radialis gekwetst, zodat ligatuur noodzakelijk was. Het aantal verwikkelingen was significant hoger na ingreep voor palmaire kysten dan voor dorsale kysten; dit zou een aansporing moeten zijn om de eerste voorzichtiger aan te pakken, en ze dus bij voorkeur toe te vertrouwen aan een oudere chirurg.

RÉSUMÉ

H. GÜNDEŞ, Y. ÇIRPICI, A. ŞARLAK, S. MÜEZZINOGLU. Le pronostic après excision des kystes arthro-synoviaux du poignet.

Une étude rétrospective a été réalisée pour évaluer les résultats du traitement de 40 kystes arthro-synoviaux du

poignet opérés sous anesthésie locale en l'espace de 4 années. Le recul moyen est de 27 mois (extrêmes: 6 et 48 mois). Il y avait 26 kystes dorsaux et 14 palmaires. La fréquence des récurrences postopératoires a été de 31,2% et 8,3%, respectivement (moyenne: 17,5%). La fréquence des complications postopératoires a été de 56% pour les kystes palmaires, contre 12,5% pour les dorsaux, et la différence est significative ($p < 0,05$). Il y a eu un cas de lésion de la branche superficielle du nerf radial chez

un patient opéré pour un kyste dorsal et une lésion de la branche cutanée palmaire du nerf médian chez 2 patients. La fréquence de lésions nerveuses était de 7,5%. Chez 2 patients opérés pour un kyste palmaire, la branche palmaire superficielle de l'artère radiale a été lacérée puis ligaturée. Le traitement des kystes arthro-synoviaux palmaires du poignet comporte davantage de risques que le traitement des kystes dorsaux; il doit être confié de préférence à un chirurgien expérimenté.