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OSTEOARTHRITIS OF THE TRAPEZIO-SCAPHOID JOINT

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Degenerative changes in the carpal joints are common and often the cause of disabling pain which seriously interferes with function. Of the midcarpal joints those into which the greater multangular bone enters appear to be most commonly affected. Much attention has been given to the carpo-metacarpal (CMC) joint of the thumb, one of the most frequent localizations of primary osteoarthritis (*Lasserre et al.* 1949, *Brailsford* 1953, *Aune* 1955 and others). The purpose of this article is to emphasize a condition which, as far as we can find from the literature, has attracted no attention. This concerns the *isolated* osteoarthritis of the trapezio-scaphoid (T-S) joint of the wrist (Figures 1 and 2). Our interest was aroused by finding this particular localization of joint degeneration in patients complaining of radial volar swelling at wrist level, clinically with appearance of a ganglion. It was found, by contrast injection into the carpal joint, that as a rule communication existed between the diseased T-S joint and the space surrounding the flexor carpi radialis (FCR) tendon (Figure 3).

Anatomically, the trapezium is an intermediate bone placed in a vulnerable position between the first metacarpal and the scaphoid. Adjacent to the volar aspect of the bone lies the tendon of the FCR which inserts at the base of the second metacarpal (Figure 4).

It is well known to everyone who deals with hand surgery that radial volar ganglia differ in character from dorsal wrist ganglia. They usually have thin walls, they may be polycystic and are often intimately connected with the FCR tendon and disappear distally into the carpus along the tendon. They may contain the same type of jelly or fluid as dorsal ganglia.

Figure 1. Local osteoarthritis between the trapezium and the scahphoid.
a) radial flexion of the wrist.
b) ulnar flexion of the wirst.

Figure 2. Advanced osteoarthritis of the trapezio-scaphoid joint.

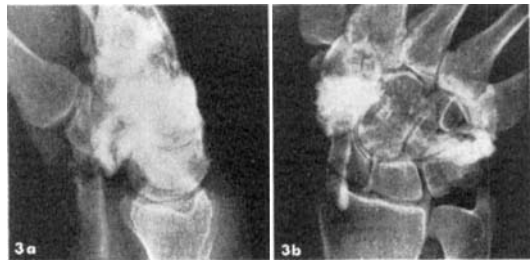

Figure 3. a) Lateral view. Contrast leaking out around the tendon of flexor carpi radialis.
b) Frontal view, same case.

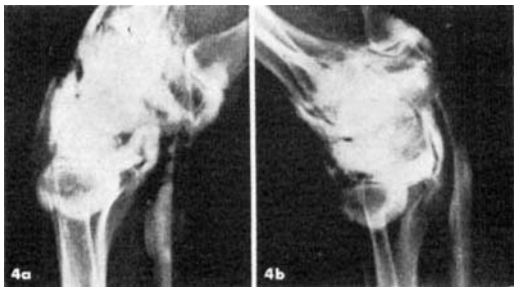

Figure 4. a) Volar flexion. Contrast leaking up along the flexor carpi radialis tendon to mid-level of fore-arm.
b) Dorsal flexion, same case.

CLINICAL MATERIAL

Since our attention was directed to the possible connection between volar "ganglion" and osteoarthritis in the T–S joint we have radiographically examined patients with radial volar swellings at the wrist.

In order to get an idea of the incidence of isolated osteoarhritis in the T–S joint among patients with this condition and above 30 years of age, a follow up study was made of the cases seen in our department during the last 15 years.

Those who revealed degenerative changes in the T–S joint underwent arthrography, whereby the contrast medium usually was injected into the carpal joint from the dorsal aspect of the wrist. Some patients with radial volar swelling but without radiological carpal changes were also examined by arthrography, representing the controls.

Table 1. Cases with osteoarthritis in T–S joint.

Case No.	Age	Sex	Initial sympt.		Osteo-arthritis		Volar tumor at time of arthrography	Operated	Arthro-graphy		Comments
			Volar tumor	Pain	CMC	T–S			Contrast around FCR	Contrast in gangl.	
1	66	F	+	+	(+)	+	+			+	
2	68	F	+		+	+		+	+		
3	40	F		+		+			+		
4	64	F	+	+		+	+		+		
5	59	F	+	+		+		+	+		
6	66	F	+	+	+	+		+	+		
7	79	F	+	+		+		+	+		
8	63	F	+	+		+	+		+		
9	63	F	+	+		+	+		+		
10	70	F		+		+			+		
11	77	F	+			+	+			+	
12	52	F	+	+		+	+		+		
13	63	F	+	+		+	+		+		
14	55	F	+	+		+		+			
15	55	F	+	+		+	+		?		No arthro-graphy
15	60	F	13	13	3	15	8	5	11	2	

RESULTS

A total of 48 cases were examined. Isolated osteoarthritis of the T-S joint was found in 12 cases, while 3 cases had additional changes in the CMC joint of the thumb. Isolated changes in the first CMC joint were found in 5 cases, while the rest of the 28 cases had normal radiological findings (Table 1).

The cases with affection of the T-S joint are listed in Table 1. All patients are female and middle aged. Most of them complained of pain and local swelling at wrist level. Contrast filling of the peritendinous space of FCR was found in 11 cases. The contrast followed the tendon

in a proximal direction, ultimately visualizing the clinically found wrist swelling. In some cases the contrast even followed the tendon to the mid level of the forearm. In 2 cases a ganglion was filled without contrast leaking out around the tendon and in 1 case, finally, arthrography was not done. Thus, in one case only communication could not be demonstrated between the diseased T-S joint and the peritendinous space or the volar swelling respectively. Six cases with radial volar wrist swelling but normal radiological findings were also examined with contrast injection into the carpus. In 5 of these normal anatomy was found while in the sixth case contrast was found around the FRC-tendon. It should be mentioned, however, that this patient had been operated several times for recurring ganglion at this site.

DISCUSSION

The numerous theories about ganglia found in the literature testify to the lack of agreement concerning the aetiology of this condition. It is reasonable to assume that no single explanation can be given. Whatever the cause may be, however, it seems probable from their proxlmity to joints that ganglia bear some relationship to synovial fluid. From the findings in the present investigation it seems quite clear that a great number of so-called radial volar wrist ganglia have a definite relationship to localized degenerative changen in the T-S joint.

The frequency of primary osteoarthritis of the CMC joint of the thumb has been pointed out by most authors dealing with this subject. According to the present observations, isolated changes in the T-S joint are not uncommon, and it is therefore curious that this condition seems to have been overlooked. The clinical aspect of the condition has an interesting difference from osteoarthritis in the CMC joint in that it frequently gives rise to the above-described volar wrist swelling.

Considering the nature of this progressive degenerative joint disease it is not difficult to conceive that a rupture of the fibres of the T-S joint capsule may easily be produced. This would allow synovial fluid to escape from the joint and by the movements of the wrist to be forced into the periarticular tissue. At this point the FRC-tendon comes in close contact with the joint capsule on its way to insertion on the second metacarpal. The synovial fluid may follow the tendon proximally and finally become of clinical significance as a ganglionlike soft tissue tumor at wrist level.

At least in middle aged and older females, before the surgeon operates

for volar radial wrist ganglia, it is recommended that he looks for radiological changes in the T-S joint. When changes are obvious, arthrograms of this joint should be made.

SUMMARY

Localized degenerative changes in the trapezio-scaphoid joint have been observed in middle aged females who complain of wrist pain and have a volar radial swelling at wrist level. Arthrographic studies have revealed communication between this diseased joint and the peritendinous space of the flexor carpi radialis, clinically often appearing as a ganglionlike swelling. The pathophysiology is discussed.

RESUME

Des modifications dégénératives localisées dans l'articulation trapézo-scaphoidienne ont été observées chez des femmes d'un certain âge qui se plaignent de douleurs dans le poignet et qui ont une enflure palmaire radiale au niveau du poignet. Des études arthrographiques ont révélé un rapport entre cette maladie articulaire et l'espace péritendineux du fléchisseur carpi-radial, apparaissant souvent en clinique sous la forme d'une enflure ganglionnaire. Il est discuté de la pathophysiologie de la maladie.

ZUSAMMENFASSUNG

Örtliche degenerative Veränderungen im multangulumnaviculare Gelenk wurden bei Frauen im mittleren Alter, die über Wandgelenksschmerzen klagen und eine volare, radiale Schwellung in der Höhe des Handgelenkes haben, beobachtet. Arthrographische Untersuchungen haben eine Verbindung zwischen diese erkrankten Gelenke und dem peritendinösen Raum des Flexor carpi radialis gezeigt, was sich klinisch oft in einer ganglionartigen Schwellung äussert. Die Pathophysiologie wird besprochen.

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