EXCISION OF THE TRAPEZIUM FOR OSTEO-ARTHRITIS OF THE TRAPEZIO-METACARPAL JOINT

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Osteo-arthritis of the trapezio-metacarpal joint frequently occurs as a mono-articular lesion. The probability that the condition is traumatic in origin has been discussed by Ray (1933). This aetiology is supported by the facts that the right side is more frequently affected, and that a third of the patients give a definite history of injury. It is odd, however, that the condition is so often bilateral. Grasping movements cause considerable pain, which prevents the proper use of the hand and causes inability to perform certain types of work. A satisfactory form of treatment is therefore of some importance.

Forestier (1927) has described the condition very fully, but mentions only palliative treatment. In general, the most satisfactory treatment for an osteo-arthritic joint is either arthroplasty or arthrodesis. In this case, the latter has the disadvantage that it is technically more difficult, requires prolonged after-treatment and gives stability at the expense of mobility. The simplest form of arthroplasty is excision of the trapezium and a series of cases in which this has been carried out is here discussed.

Clinical Findings

All patients complained of pain over the base of the metacarpal on using the thumb, with local tenderness and some enlargement of the joint. In three cases effusion into the joint was so great that a ganglion was simulated.

Age and Sex. In a series of thirteen patients, eight were women and five men. Their ages varied from 45 to 71.

Side. The right thumb was affected in seven patients, the left in three, and three showed bilateral lesions. In only two patients were there any definite osteo-arthritic changes in other joints of the body.

Radiographic appearances. The films all show simple osteo-arthritic changes, with a diminished joint space and well-marked osteophyte formation (Fig. 1). There is often some degree of radial subluxation of the first metacarpal bone on the

trapezium (Fig. 2). In a few cases small loose bodies are seen about the joint (Fig. 3).

Operation

Under a tourniquet an incision is made parallel to the tendon of the Extensor Brevis Pollicis in the distal part of the anatomical snuff box. The joint between the base of the first metacarpal and the trapezium is opened as widely as possible. It is usually found to be distended with synovial fluid. By keeping close to the bone and using a small scalpel, such as a Bard Parker No. 15 blade, the ligaments are dissected off the dorsum of the trapezium in a proximal direction until the articulation with the scaphoid is reached. This joint is opened and a raspator is inserted to act as a retractor and to protect the radial artery which traverses the snuff box near the proximal end of the bone on its way to form the deep palmar arch.

It is now possible to work further round the dorsum and open up the joints between the trapezoid and the second metacarpal. The ligaments are next dissected off the palmar surface; they include the transverse carpal ligament with some fibres of the Opponens and Flexor Brevis Pollicis Muscles. Actually, these muscles are not seen. The tendon of Flexor Carpi Radialis may be damaged if care is not taken to keep close to the bone. The final removal of the bone is not easy and it is tempting to lever it out with a rongeur by force. If this is done there is some risk of leaving a portion behind (Figs. 5 and 6). It is therefore better to be gentle and persist with further dissection.

After-treatment

A firm pressure bandage is applied before removal of the tourniquet. Active movements of the thumb are started at once, care being taken next day that the bandage does not limit movement of the thumb. As these patients have all been avoiding movement at the base of the first metacarpal for some time owing to pain, they have developed the habit of using the thumb at the metacarpo-phalangeal joint. It is therefore im-

FIG. 1.

FIG. 2.

FIG. 3.

FIG. 4.

FIG. 5 (with inset).

FIG. 1 (right and left).—A bilateral case. Left, severe changes with diminution of joint space and large osteophytes. Right, diminished joint space only.

FIG. 4 (right and left).—Results of excision of the trapezium. Right trapezium excised April, 1944; left, excised February, 1947. These radiographs were taken in January, 1948, when the patient was able to do full work on a farm without pain.

FIG. 2 (right).—Osteo-arthritis of trapezio-metacarpal joint showing osteophytes and subluxation.

FIG. 3 (left).—Osteo-arthritis with loose bodies about the joint.

FIG. 5 (right and left).—Radiographs taken more than two years after excision of right and left trapezia. On the left there is some new bone formation at the site of the trapezium. Too much force was used at operation so that a fragment was chipped off.

(Inset).—Radiograph one year after operation. The bony fragment was not so large at this stage.

portant that the physiotherapist should supervise the movements and make sure that the metacarpal is again moved through a full active range at the new joint.

This treatment is continued until the patient can return to light work, which is usually a matter of four to six weeks. Some patients complain of pain for longer than this, but others are surprisingly pain free; one started milking cows within a month of operation.

Results and Case Reports

All the patients have been very satisfied with the results of the operation, and have reported improved function and little or no pain. Removal of the trapezium leaves the thumb a little weaker than the normal, but a full range of movement of the metacarpal is regained with no obvious deformity.

Mr. E. B., aged 48, farm worker. Pain and swelling at the base of the right thumb which he dated from an injury two years before. The right trapezium was excised in April, 1944. He worked full time after this, but attended again in 1947, complaining of pain in the left thumb (Fig. 2). The left trapezium was excised in February, 1947. He was able to do full work inside two months and has been doing full farm work since. He states there is no pain and he can do anything. On examination in January, 1948, there was a full and painless range of movement with good power in both thumbs, but slight crepitus on movement on the right side (Fig. 4).

Mrs. G. F., aged 53, housewife. The right and left bones were excised in November, 1945 (Fig. 1). She is now very satisfied and has no pain, but states that her hands are not quite so strong for turning taps as previously. The radiographs taken in January, 1948, show a satisfactory result on the right, but on the left a fragment of the trapezium remains in situ (Fig. 5). It is interesting to note how this fragment has increased in size since the film taken one year after operation (Fig. 6).

Miss E. W., aged 46, sempstress. Four years of pain and difficulty in carrying out her work. The right trapezium was excised in April, 1944. She has been working full time since with no pain.

Miss N., aged 58. Symptoms following an injury nine months before. Pain on using left thumb and a marked cystic swelling over the trapezio-metacarpal joint (Fig. 3). The trapezium was excised in April, 1944. In 1948 she reported that her thumb was quite satisfactory and she was very pleased that she had undergone the operation.

Mr. Q. W., aged 62, retired, is an example of the results in older patients. He gave a history of pain over a period of five years, with unsuccessful treatment by physiotherapy. The right trapezium was excised in February, 1947. He now amuses himself sawing up logs.

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MEDIAN NERVE COMPRESSION IN THE CARPAL TUNNEL

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The carpal tunnel is a very confined space. It has been designed as a trough with a hard floor and rigid bony walls in order to protect the important structures within its confines. But for this anatomical arrangement, it is unlikely that the flexor tendons with their delicate sheaths and the median nerve could withstand the trauma of recurrent falls on the outstretched hand. The walls, which consist on the the medial side of the pisiform

and the hook of the hamate, and on the lateral side, of the tubercle of the scaphoid and the ridge on the trapezium, have stretched across between their peaks a fibrous sheet forming a roof known as the transverse carpal ligament. This is a tough structure giving additional protection and acting as a bar to forward prolapse of the structures when the wrist is in flexion.

The tendons and nerve pass from the loose en-