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CASE REPORT

Radiohamate impingement after proximal row carpectomy 'Radiohamate impingement PRC'

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Radiocarpal impingement after PRC is a well-known complication due to impingement of the radial styloid against the radial carpal bones. A less common impingement syndrome is that of the pisiforme. We describe a radiohamate impingement and its diagnosis and treatment. Based on a case we saw at our practice. Diagnosis is bases on standard radiographs and SPECT-CT. The treatment is initially conservative. Surgery is necessary when conservative treatment fails and consists of resectie of the proximal pole of the hamate.

Keywords: Radiohamate ; impingement ; proximal row carpectomy.

INTRODUCTION

Proximal row carpectomy (PRC) is a well-established motion-preserving salvage procedure for degenerative disorders of the proximal carpal row. Long-term functional outcomes are well-documented and similar tot partial midcarpal arthrodesis. Remaining wrist motion is approximately 68% and remaining strength is 80% compared to the contralateral wrist. The overall satisfaction rate is 80%. The failure rate of PRC, defined as salvage to radiocarpal arthrodesis, ranges from 0% to 18% *(5)*. Radiocarpal and pisiform impingement have been described after PRC. The first is probably due to the proximalization of the distal row with impingement of the trapezium/ trapezoid against the radial styloid process. The treatment is a radial styloid process resection for the first and a pisiformectomy for the latter *(3,5)*. No other impingement syndromes have been described. We present a case of radiohamate impingement syndrome after proximal row carpectomy.

CASE REPORT

A 53-year-old mechanic contacted us 1 year after a work-accident with localized radiocarpal pain and swelling. Radiographs showed a stage two SLAC wrist. (Fig. 1) A PRC with synovectomy was performed. The following 3 years were uneventful with no to minimal pain complaints. Later on, atraumatic progressive pain and swelling occurred non-responsive to conservative treatment. The work-up included a radiograph and bone-scan with addition of CT imaging (SPECT-CT)

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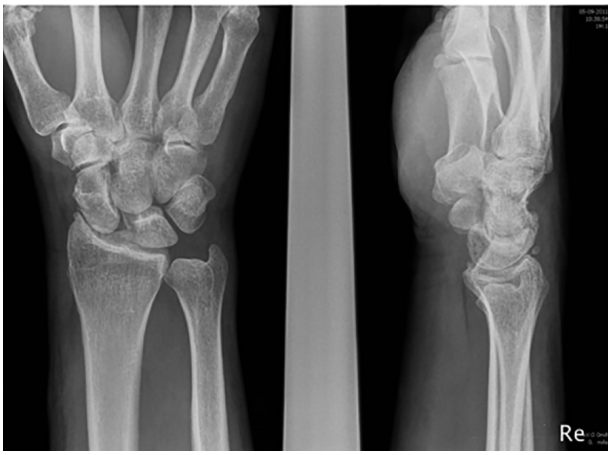

Fig. 1. — Pre-PRC image showing a stage 2 SLAC wrist

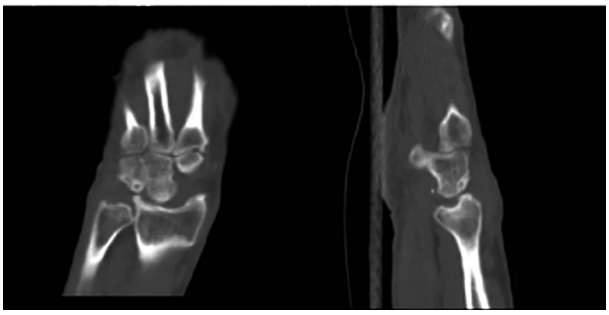

Fig. 2. — CT images of the impingement site clearly show subchondral cyst formation in the hamate

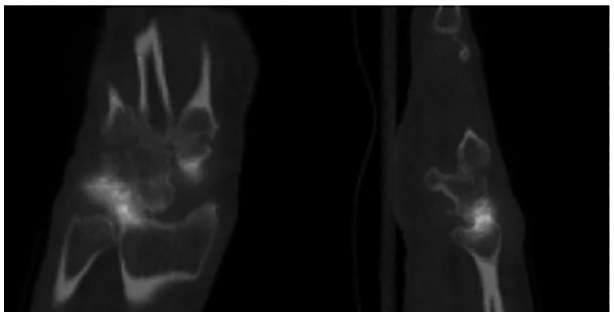

Fig. 3. — Bone-scan with addition of the CT shows a significant signal increase at the site of the impingement

which revealed a signal increase at the radiohamate interval. These images also revealed subchondral cyst formation at the proximal tip of the hamate. (Fig. 2-4) This was considered due to radiohamate impingement. Since these symptoms impeded the patient to fulfill his work requirements, a surgical intervention was suggested. A resection of the proximal pole of the hamate was performed using a dorsal wrist approach. (Fig. 5) At 1 year, the patient

Fig. 4. — Radiography showing a status post PRC. A cyst in the proximal pole of the hamatum is discernable

Fig. 5. — Status post resection of the proximal pole of the hamatum

was pain free, the flexion-extension arc was 66° and the grip strength was 70% of the contralateral side, which was similar as immediate postoperative of the proximal row carpectomy. He was able to resume his occupation.

DISCUSSION

Radiocarpal impingement after PRC is a well-known complication due to impingement of the radial styloid against the radial carpal bones *(5)*. Resection of the radial styloid is therefore sometimes performed after intraoperative testing *(2,5)*. A less common impingement syndrome is that of the pisiforme. This probably occurs due to

impingement of the pisiforme between the hook of the hamate and the ulnar styloid process. Resection of the pisiforme should resolve this problem *(3)*. however, due to the rarity of this phenomenon, this is not routinely performed. We report a case of radiohamate impingement. To our knowledge, no prior reports exist describing this phenomenon. In a case report by Kluge et al. bone marrow oedema was seen on MRI at the tip of the hamate bone *(3)*. However, it was considered to be subclinical.

Radiographs before the PRC procedure showed a type 2 lunate configuration. We believe that this entity occurs only partially due to a prominent hamate bone tip. However, part of the problem probably is an elongated dorsal ulnar rim of the radius. In the preoperative radiograph before the PRC a calcification is seen at the dorsal rim of the radius. This might be the origin of the osteophyte seen on the pre PRC radiographs and SPECT-CT. The work-up should include a standard radiograph. MRI can be considered but due to the proximity of surrounding structures, we recommend a SPECT-CT to clearly identify the location of the impingement. We noticed that a SPECT-CT is sensitive to pick up and localize bony impingement syndromes in the hand and wrist, as has been described in the ankle *(4)*. Conservative treatment such as bracing and infiltrations should be tried but in case of persistent symptoms, surgery is a valid treatment option. Resection of the proximal pole of the hamate bone led to full symptomatic relief and therefore we advise it as the treatment of choice in these specific cases of impingement.

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