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Achilles and patellar tendon operations performed in local anesthesia

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ABSTRACT

From 20 years of research on innervation patterns and pain mechanisms in chronic painful Achilles and patellar tendinopathy, we have learned that the nerves are located outside the affected tendon. With this background we use local anesthetics in combination with Adrenaline when these patients are surgical treated. We have now more than 15 years of experience in treating Achilles tendinopathy, and 10 years of experience in treating patellar tendinopathy, in local anesthesia alone. I will present the scientific background and practical techniques to use local anesthesia for treatment of chronic painful Achilles and patellar tendinopathy.

INTRODUCTION

Because there was sparse knowledge about where the pain comes from in chronic painful Achilles and patellar tendinopathy we started research projects in the mid 1990 ties to learn more about innervation patterns and possible pain mechanisms related to these conditions. Ultrasound and Doppler-guided (US+DP) biopsies from the tendon inside and outside, examined with immune-histochemical techniques, showed that there were few nerves inside the tendons but multiple nerves in close relation to blood vessels outside the deep (ventral-Achilles and dorsal-patellar tendon) side of the tendons [1,-3]. US+DP-guided injections of small volumes of local anesthesia targeting the blood vessels outside the deep side of the tender region in the tendon temporarily completely cured the tendon pain during tendon loading activity [1]. These findings were used for anesthetic purposes when treating chronic painful Achilles and patellar tendinopathy, and also helped to better understand pain mechanisms related to these conditions. Further immune-histochemical analyses of the tendon tissue shed new light to neuronal mechanisms [4-14]. Furthermore, these research findings resulted in the invention of new treatment methods performed in local anesthesia, targeting treatment in the regions with high blood flow and nerves outside the deep side of the tendon. Methods that in pilot studies, randomized studies, and follow-up studies have shown good clinical results [15-20].

PRACTICAL TECHNIQUES

US+Doppler examination is always used for evaluation of the tendinopathy and the related blood flow. When the regions with high blood flow on the deep side of tendon have been identified, and with the knowledge from the basic research that the nerves are located close to the blood vessels, the local anesthetic is injected targeting this region. We use 0.5% Xylocain/Adrenaline (Astra Södertälje, Sweden) for the Achilles tendon, and most often only small volumes (3-5 ml) are needed for a local anesthetic effect good enough to allow for pain-free surgical treatment outside, and if needed also inside, the Achilles (16-18). We have used this local anesthesia in more than 1000 Achilles tendon operations, and we have never needed to add sedation or change to spinal, epidural or general anesthesia due to pain during the operation.

For treatment of chronic painful patellar tendinopathy we use a US+DP-guided arthroscopical approach. For this procedure we use 0.5% Xylocain/Adrenaline (Astra Södertälje, Sweden) where we inject 5 ml subcutaneously for the medial and lateral portals, and 20 ml intra-articularly (19,20). With this local anesthesia the US-guided arthroscopical procedure is performed without pain or discomfort for the patient. No tourniquet is needed because the Adrenaline in the local anesthesia very well minimise the bleeding, and there is no disturbance of the view. If a minor

partial removal of the bony patellar tip is needed this is also very well tolerated in local anesthesia, without any pain or major discomfort. We have used this local anesthesia in more than 500 patellar tendon operations, and we have never needed to add sedation or change to spinal, epidural or general anesthesia due to pain during the operation. Also, we have never experienced any patient related complications from using local anesthesia as described above for treatment of the Achilles and patellar tendon.

CONCLUSIONS

Our experiences from using local anesthesia, xylocaine+Adrenaline, when using the US+DP-guided surgical techniques for treatment of Achilles and patellar tendinopathy, are very positive. The operations are done without any pain and discomfort for the patients, the operation field view is excellent (Adrenaline very well minimise bleeding disturbances of the views), and there has been no complications for the patients in relation to the local anesthetic. Local anesthesia used as described here very well replace the need for spinal, epidural or general anesthesia for treatment of Achilles and patellar tendinopathy.

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