Discussion: The interphalangeal joint stiffness of the thumb is a rare condition that can be seen in children without other malformations. The etiology is still unknown. Radiologically the changes can be seen in adolescence.

A-0052 Interposition arthroplasty with a new bioreplaceable implant for small joints RegJoint – five year experience in hand surgery

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Introduction: Rheumatoid arthritis (RA) and osteoarthritis (OA) as well as other diseases can cause destruction of the carpometacarpal I (CMCI) and finger joints. The treatment of severely destructed joints is surgical replacement with joint prosthesis manufactured from flexible silicone or other materials or arthrodesis. Silicon prostheses (Swanson's prostheses) have been used worldwide since 1964. However, the material used in silicon prostheses may not be strong enough in the long term and several reports of breakdown of the prostheses have been published. The long-term results have also shown that bony resorption around the implant may occur. The known weaknesses of the current endoprostheses used in the surgical treatment of destructed joints have lead researchers to look for new materials.
Material: Novel scaffolds (RegJoint) were developed by researchers from Tampere University Hospital in Finland using a well-known poly-L/D-lactide copolymer with L/D-monomer ratio 96/4 (PLDLA). The PLDLA scaffolds are fibrous, porous cylinders enabling the in-growth of fibrous tissue, which then forms a functional joint for the patient. The scaffold will bioabsorb and be replaced with fibrous tissue in approximately 2–3 years.
Method: This study is part of a prospective randomised international multi-center study that was supported by the European Commission and surveyed by an Ethical Commitee.
The new bioreplaceable devices were implanted in hands (CMC, MCP, PIP and DIP) and compared to the standard treatments (Swanson Prosthesis, Arthrodeses). For the assessment of the results the DASH score and VAS evalation, for statistics SPSS were used.
Results: Since 2004 we included 122 patients who were operated on 155 joints in hands. 101 RegJoints were implanted. The DIP joint remained with a slight lack of extension and satisfying flexion but slight instability of the ligaments. The PIP and MCP joints have a similar outcome as the Swanson prosthesis. The CMC I joints gained significantly more force with a scaffold interposition. The majority of all patients are pain free. Complications occurred only in DIP and PIP joints: four infections, four times stiffness and one fatality.
Summary: The surgical treatment of small joins destructed by osteoarthritis or rheumatoid arthritis with implants, arthroplasties or arthrodesis is not always satisfying. The new bioreplaceable scaffold RegJoint made of PLDLA seems to be another good option especially for CMC I and stable MCP joints. Only long term assessment though will show if we have achieved the expected lasting benefit for the patient.

Literature:

1. Honkanen PB, Kellomäki M, Lehtimäki MY et al. Bioreconstuctive joint scaffold implant arthroplasty in metacarpophalangeal joints: Short-term results of a new treatment concept in rheumatoid arthritis patients. Tissue Engineering, 2003, 9, 957–65.
2. S. Mai, B. Mai, Ein- bis Zwei-Jahreserfahrungen mit einem neuen biodegradierbaren Implantat für kleine Gelenke, Orthopädische Praxis, 2007, 43, 4, 159–67.
3. Murray PM. New-generation implant arthroplasties of the finger joints. J Am Acad Orthop Surg, 2003, 11, 295–301.
4. Swanson AB. Flexible implant arthroplasty for arthritic finger joints. Rationale, technique, and results of treatment. J Bone and Joint Surg [Am], 1972, 54, 435–55.

A-0055 In-vivo confirmation of the functional significance of the dart thrower's motion of the human wrist

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Purpose: The dart thrower's motion (DTM) is a wrist rotation along an oblique plane from radial extension to ulnar flexion. The intricate anatomy of the individual carpal bones, the arrangement of intraosseous ligaments and muscle insertions facilitate a smooth transition of the distal carpal row from radial extension to ulnar flexion along the DTM with minimal muscle force and a unique degree of radiocarpal stability. The aim