A Paradigm Shift in the Treatment of Bacterial Arthritis: In-Office Needle Arthroscopy

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Alex Walinga	Declares that he received an unrestricted research grant from Arthrex and an innovation grant from Amsterdam UMC during the conduct of the study
Tobias Stornebrink	Declares that he received an unrestricted research grant from Arthrex during the conduct of the study
Arthur Kievit	Declares that he has no financial interest or other relationship with a commercial company or institution
Stein Janssen	Declares that he has no financial interest or other relationship with a commercial company or institution
Gino Kerkhoffs	Declares that he is a paid consultant for Arthrex and he received an unrestricted research grant from Arthrex during the conduct of the study

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Background

For patients with bacterial arthritis, recent technological innovation offers the possibility of a **2-mm diameter bedside arthroscopic lavage**, also known as needle arthroscopy.

This might prevent patients from having to undergo surgery in the expensive operation theater.

The primary objective of this study was to evaluate the effectiveness (in terms of **avoiding additional interventions** to control the infection) of immediate bedside needle arthroscopy under local anesthesia in patients with suspected bacterial arthritis of a native joint.

Hypotheses

We hypothesized that needle arthroscopy under local anesthesia could decrease the need for surgery in patients suspected of having bacterial arthritis of a native joint.

Methods

Study design: multicenter prospective cohort study

Inclusion criteria

Exclusion criteria

<10 years

Foreign bodies in the affected joint

Recent surgery of the affected joint (<3m)

Open trauma

Osteomyelitis

Intervention: all included patients were treated by in-office needle arthroscopy

Primary outcome: the number of patients that needed additional intervention(s) to control the infection of the affected joint <30 days

Secondary outcomes: patient experiences, clinical outcomes, and adverse events

Results

30 joints (28 patients)

2 shoulders (7%)
2 elbows (7%)
0 wrists

21 knees (70%)

5 ankles (17%)

Mean age: 65 (range 21 - 100)

Female: 27%
Male: 73%
Other: 0%

Positive culture: 37% (11/30)

Primary outcome:

Reintervention rate: 5 (17%)
Arthrocentesis: 2 (7%)
Reoperation: 3 (10%)
- Second needle arthroscopy (n=1)
  - Third conventional surgery (n=1)
- Second conventional surgery (n=2)

Secondary outcomes

Mean max NRS of pain (0-10) during intervention: 4.4 (range 0 - 9)

Patient satisfaction (yes / no): 90% yes

Mortality: 0%

Mean intervention time: 27 minutes (range 10 - 60)

Complications: 0%

Saved OR time: 30 * 1.5u = 45u = 5.6 OR days

Conclusion

In-office needle arthroscopy promises to be **an efficient treatment** at the patient's bedside for patients with a clinical suspicion of bacterial arthritis of a native joint.

In this series, **90%** of the patients were saved a trip to the operation theater for conventional expensive surgery, without compromising clinical outcomes.

In-office needle arthroscopy **reduced** conventional surgery and anesthesia in the treatment of bacterial arthritis

In-office needle arthroscopy **decreased the pressure** on scarce OR time

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