

Recommendation 8: Synovial Biopsy in Patients with UPIA

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Learning Objectives



At the end of this section participants should be able to:

- **Describe the utility of synovial biopsy in the evaluation of UPIA**
- **Describe the features on synovial biopsy which have been investigated with respect to the evaluation of UPIA**

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Routine synovial biopsy is not recommended but can give information for differential diagnosis, especially in patients with persistent monoarthritis [2b, B].

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This recommendation had a strong agreement of 8.8/10.

84% of rheumatologists felt that this recommendation was already implemented in their practice.

Undifferentiated Arthritis



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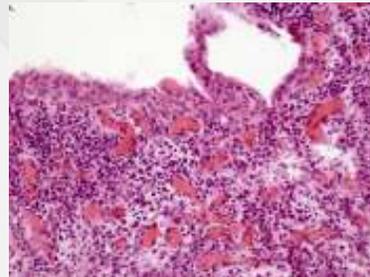
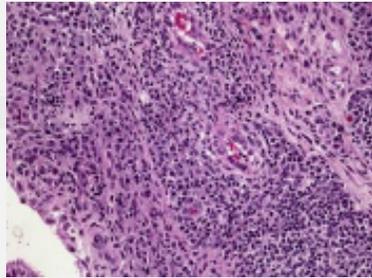
- Early stage of classifiable disease
- Part of an overlap of disease
- Partial form of a defined disease
- Disease of unknown origin

UA envelops a heterogeneous group of recent onset arthritides that are not classifiable within established criteria sets such as those of the American College of Rheumatology (ACR) and The European League Against Rheumatism (EULAR).

UA may represent an early stage of a classified form of arthritis that will eventually be definable; an overlap of more than one disease; a partial form of a defined disease; or a disease of unknown origin. UA overall has a better prognosis than RA as it encompasses a spectrum of self-limited disorders. As compared to RA, a patient with UA usually presents with fewer affected joints, less radiographic erosions, better functional ability, and a greater likelihood of being seronegative. Patients with UA are also less likely than patients with RA to require treatment that involves the use of corticosteroids (such as Prednisone) or DMARDs and a substantial proportion of UA patients remit spontaneously.

Hitchon CA, Peschken CA, Shaikh S, El-Gabalawy HS. Early undifferentiated arthritis. *Rheum Dis Clin N Am*. 2005;31:605-626.

Synovial Hypertrophy/Synovitis in RA 3



Synovial inflammation (synovitis) and proliferation is the hallmark of rheumatoid arthritis, and distinct pathological changes can be identified in different rheumatic diseases

Synovial Biopsy



- **The role of synovial biopsy in UPIA is poorly defined, only a few studies could be identified**
- **Three broad synovial features of interest were identified in the literature:**
 - **ACPA staining**
 - **Synovial Histopathology**
 - **Vascular patterns**

Synovial Biopsy

- The role of synovial biopsy in UPIA is poorly defined, only a few studies could be identified
- Three broad synovial features of interest were identified in the literature:
 - ACPA staining
 - Synovial Histopathology
 - Vascular patterns

Synovial Biopsy: ACPA Staining



- **In contrast to serologic ACPA testing, ACPA staining was shown not to be highly specific for a diagnosis of RA**

Synovial Biopsy: ACPA staining

In contrast to serologic ACPA testing, ACPA staining was shown not to be highly specific for a diagnosis of RA.

ACPA staining of synovial biopsies has been investigated in one study and was found to have minimal utility.

167. Vossenaar ER, Smeets TJ, Kraan MC, Raats JM, van Venrooij WJ, Tak PP. The presence of citrullinated proteins is not specific for rheumatoid synovial tissue. *Arthritis Rheum.* 2004 Nov; 50(11):3485-3494.

- **In one study, synovial histopathology seemed to differentiate between RA and non-RA**
- **Higher scores for the numbers of CD38+ plasma cells and CD22+ B cells in RA were the best discriminating markers comparing RA to non-RA patients**

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• Higher scores for the numbers of CD38+ plasma cells and CD22+ B cells in RA were the best discriminating markers comparing RA to non-RA patients

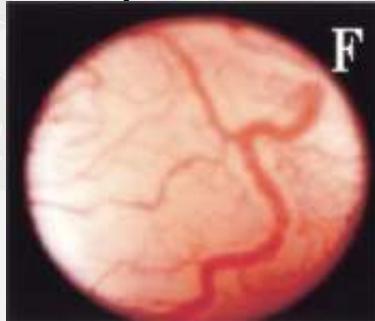
Findings on histopathology was found in one study to have some utility in differentiating RA from non-RA.

Kraan MC, Haringman JJ, Post WJ, Versendaal J, Breedveld FC, Tak PP. Immunohistological analysis of synovial tissue for differential diagnosis in early arthritis. *Rheumatology (Oxford)*. 1999 Nov; 38(11):1074-1080.

Synovial Biopsy: Vascular Patterns



The vascular pattern in undifferentiated arthritis was not specific enough to differentiate between SpA and RA.



Macroscopic tortuous vessel pattern in SpA (Baeten, 2004)

Synovial Biopsy: Vascular Patterns

The vascular pattern in undifferentiated arthritis was not specific enough to differentiate between SpA and RA.

Finally, Vascular patterns on synovial biopsies was not specific enough to allow accurate diagnostic classification in patients with UPIA. Shown above is a macroscopic tortuous vessel pattern typically associated with SpA.

1. Baeten D, Kruithof E, De Rycke L, Vandooren B, Wyns B, Boullart L, et al. Diagnostic classification of spondylarthropathy and rheumatoid arthritis by synovial histopathology: a prospective study in 154 consecutive patients. *Arthritis Rheum.* 2004 Sep; 50(9):2931-2941.
2. Canete JD, Rodriguez JR, Salvador G, Gomez-Centeno A, Munoz-Gomez J, Sanmarti R. Diagnostic usefulness of synovial vascular morphology in chronic arthritis. A systematic survey of 100 cases. *Semin Arthritis Rheum.* 2003 Jun; 32(6):378-387.

Persistent Monoarthritis



**Synovial Biopsy
may be helpful in
persistent
monoarthritis.**



Persistent Monoarthritis

Synovial Biopsy may be helpful in persistent monoarthritis.

Experts also highlight that that synovial biopsy may give important diagnostic clues, especially in selected cases (e.g. persistent monoarthritis).

Summary



- **Evidence does not support the role for synovial biopsy in the routine evaluation of patients with UPIA**
- **Synovial biopsy may be helpful in patients with persistent monoarthritis**

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- Synovial biopsy may be helpful in patients with persistent monoarthritis

References



- Vossenaar ER, Smeets TJ, Kraan MC, Raats JM, van Venrooij WJ, Tak PP. The presence of citrullinated proteins is not specific for rheumatoid synovial tissue. *Arthritis Rheum.* 2004 Nov; 50(11):3485-3494.
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