Introduction to Flow Diagram

The application of synovial fluid cytoanalysis to disease diagnosis necessitates both the accurate recognition of the cellular and non-cellular constituents of the synovial fluid and an understanding of their significance. The latter is the aspect most likely to cause concern to those embarking upon diagnostic synovial fluid analysis. To simplify the interpretation we have devised a flow chart or algorithm into which the synovial fluid findings can be placed and from which, in the overwhelming majority of cases, the best possible diagnosis can be made.
Start

What is the nucleated cell count?

< 1000 cells/mm³

< 1500 cells/mm³

< 60,000 cells/mm³

Are polymorphs most abundant cells?

Yes

No

No diagnosis possible

Differential diagnosis
(1) Septic arthritis
(2) Reactive arthritis
(3) Gout
(4) Rheumatoid disease

Is the fluid blood-stained or frank blood?

Yes

Haemarthrosis

No

< 6000 cells/mm³

> 1000 cells/mm³ and < 1500 cells/mm³

Does the wet prep contain one or more of the following:
(a) Hydroxyapatite crystals
(b) Crimped cartilage
(c) Cartilage containing chondrocyte clusters
(d) Coated strands?

Yes

Osteoarthritis

No

Internal joint derangement or non-haemorrhagic acute trauma

Are crystals of monosodium urate present in the wet prep?

Yes

Quiescent gout

No

Are fragments of fibrocartilage or ligament present within the synovial fluid?

Yes

Osteoarthritis

No

Are eosinophils, mitotic figures or multinucleate cells present?

Yes

None

No

Are CPM, LE cells or Reider cells present or do lymphocytes account for > 80% of nucleated cells?

Yes

Non-inflammatory arthropathy

No

Osteoarthritis

Monoarticular osteoarthritis