

Macrophage Containing Neutrophil(s) (Neutrophage)

SYNONYMS

neutrophage, hemophagocytic histiocyte, Reiter cell (synovial fluid)

VITAL STATISTICS

size 20 to 80 μm
 n:c ratio 1:3
 cell shape irregular with shaggy margins or pseudopodia
 nuclear shape round to indented; may be multinucleated
 chromatin dense reticular to coarse clumped pattern
 nucleoli usually small; single or multiple
 cytoplasm gray-blue often with numerous coarse azurophilic granules, phagocytized neutrophils and debris

KEY DIFFERENTIATING FEATURES

macrophage with ingested neutrophils with varying degrees of degeneration

POTENTIAL LOOK-ALIKES

macrophages containing other cellular debris

OCCURRENCE IN BODY FLUIDS

abnormal

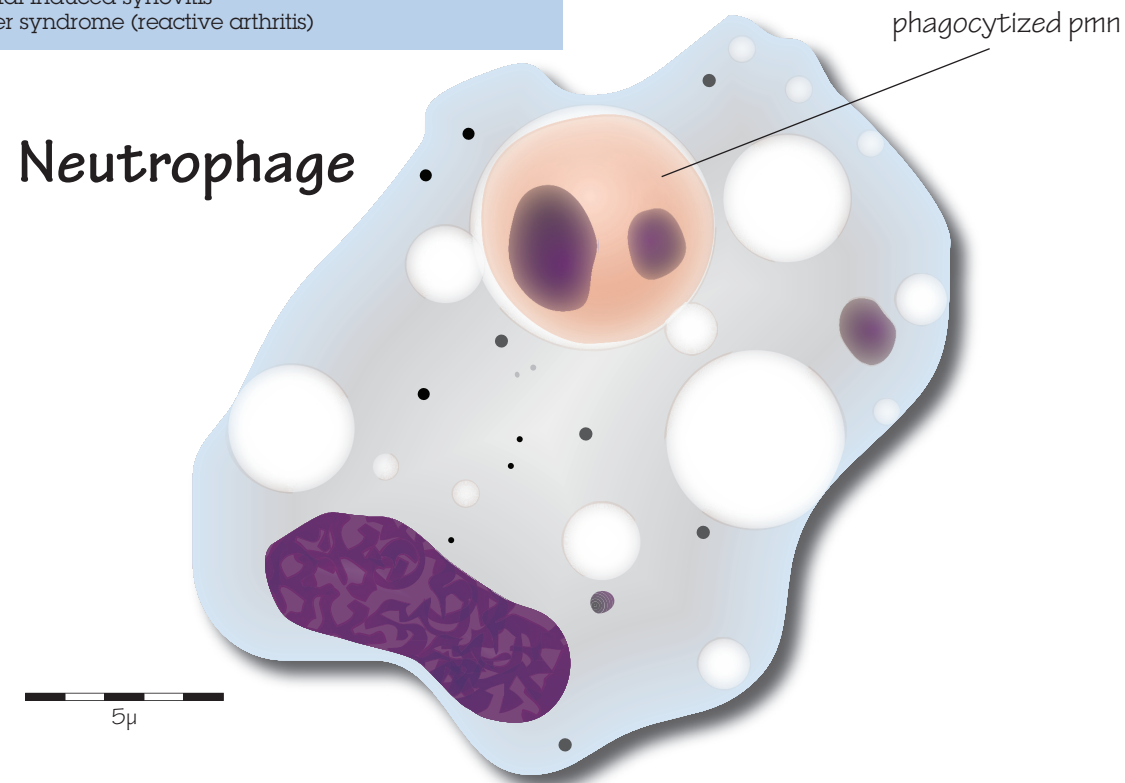
ASSOCIATED DISEASE STATES AND CONDITIONS

acute bacterial or fungal infection
 acute inflammatory disorders
 crystal-induced synovitis
 Reiter syndrome (reactive arthritis)

The cellular events of acute inflammation are marked by the influx of large numbers of neutrophilic granulocytes. This is usually a beneficial response to injury and infection that normally resolves with minimal tissue damage.

Because neutrophils may also injure normal tissue when they degranulate, the removal of neutrophils and their potentially toxic contents is an important part of resolution and tissue healing. Monocytes clean up the cellular debris as the inflammation subsides and help to limit the degree of tissue injury. The phagocytosis of spent neutrophils is a normal response and represents a purely reactive phenomenon in body fluids containing many such cells. Neutrophages typically indicate resolution of the acute phase of inflammation. In the past, they have been referred to as "Reiter cells" (see page 157). One or more neutrophils in varying phases of degeneration are present in the cell cytoplasm.

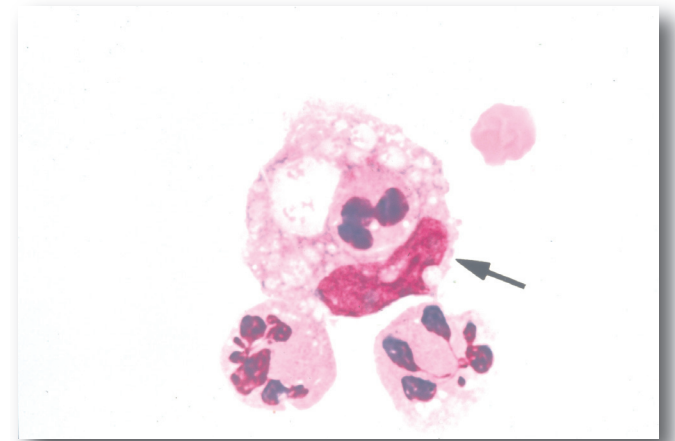
In the acute phase of "Reiter" syndrome, the neutrophil count in synovial fluid may approach or even exceed 60,000/ μL . Neutrophages are typically most numerous in this phase, though they are substantially fewer than neutrophils.



CM-26, 1995 (CSF, Wright-Giemsa, X400)

| Identification | Referee % | Participant % |
|---------------------|-----------|---------------|
| Neutrophage | 58.6 | 24.1 |
| Monocyte/macrophage | 24.1 | 15.4 |
| Erythrophage | - | 23.8 |
| Lipophage | - | 10.3 |

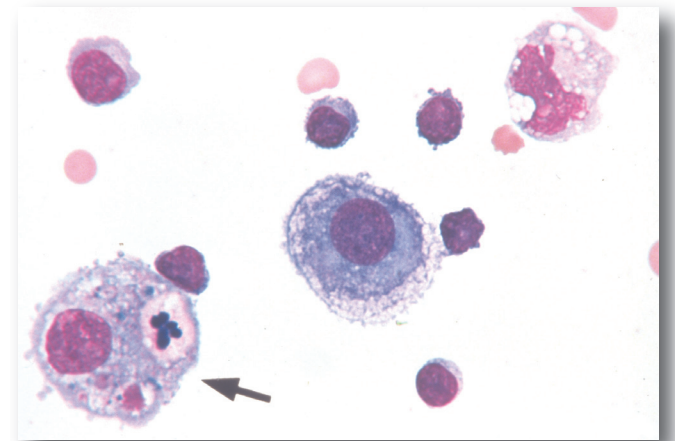
This cerebrospinal fluid was obtained from a 60-year-old woman with a lung mass and severe headache. The arrowed cell is a neutrophage. In addition to a single, largely intact neutrophil, the macrophage contains numerous vacuoles. The oblong nucleus appears to be pressed over and distorted into one side of the cell—a common finding in macrophages that contain large amounts of phagocytic debris. Just below the neutrophage are two segmented neutrophils.



CM-04, 1989 (Pleural, Wright-Giemsa, X250)

| Identification | Referee % | Participant % |
|---|-----------|---------------|
| Neutrophage | 43.8 | 37.1 |
| Macrophage | 31.3 | 20.7 |
| Siderophage | 12.5 | 5.7 |
| Neutrophil/macrophage with phagocytized fungi | 12.5 | 26.3 |

The arrowed cell is a macrophage containing a phagocytosed neutrophil (neutrophage). The neutrophil appears apoptotic, with a small condensed basophilic nucleus. In addition, this cell contains the remnants of another cell, perhaps a platelet. Also in this field are five small lymphocytes, a larger lymphocyte in the upper left, a monocyte/macrophage in the upper right, and a mesothelial cell in the center.



CM-12, 1996 (Peritoneal, Wright-Giemsa, X320)

| Identification | Referee % | Participant % |
|---------------------|-----------|---------------|
| Neutrophage | 73.1 | 96.8 |
| Monocyte/macrophage | 19.2 | 0.4 |
| Mesothelial cell | 7.7 | 0.8 |

This peritoneal fluid was obtained from a 74-year-old man with congestive heart failure and ascites. Cell counts on the peritoneal fluid were WBC=2850/ μL and RBC=16,800/ μL . The arrowed cell in this field is a macrophage containing two ingested neutrophils, i.e., a neutrophage. One of the ingested neutrophils exhibits apoptotic features, with a deeply basophilic condensed nucleus and still intact plasma membrane; while the other neutrophil exhibits more advanced degenerative changes, with a pale violet nucleus and indistinct plasma membrane. Erythrophages are located just below and to the left of the neutrophage.

