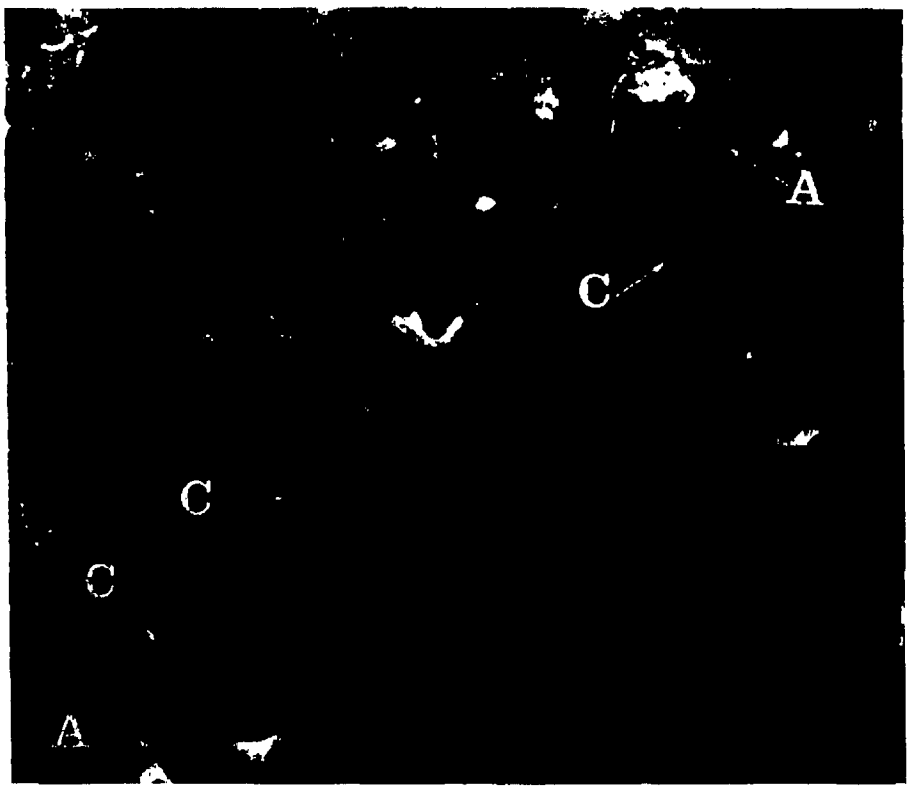

FIG. 7. A particle of brake lining dust within a mouse macrophage 2 wk after the injection of this dust. In this instance the dust consists of low density amorphous material within which are embedded recognizable crystals of chrysotile asbestos (C) and larger nonfibrous crystalline particles that probably represent metallic aluminum (A). × 63,000.

chrysotile many of the larger particles although surrounded by cells, remained extracellular. Dead macrophages containing brake lining dust were found in the granulomas at all stages of the experiment, but they were less frequent than in granulomas produced by chrysotile heated to either 800°C or 1000°C.

DISCUSSION

The present study has confirmed previous suggestions that the physical shape of asbestos particles is important in determining the degree of fibrosis produced in tissues. Several workers including King *et al.* (1946), Vorwald *et al.* (1951), and Webster (1965) have suggested that long fiber asbestos is more fibrogenic to lung tissue than short fiber dust and Davis in 1972 showed that this also applied to dust injected into the pleural cavity. It was found in this work that long fiber samples of a number of mineral dusts produced much more fibrosis than short fiber dust. In the studies using heated chrysotile it was found that if the dust was heated to no more than 400°C mechanical grinding still produced dust containing a large proportion of long fibers. When normal chrysotile is finely ground the original crystal bundles tend to split longitudinally rather than transversely and therefore very long thin fibers are produced. Sieving this dust removes most