The preparation of smears from neurosurgical biopsy material is one technique by which a rapid diagnosis may be made available to the neurosurgeon. This technique is particularly appropriate for the small soft pieces of tissue obtained by needle biopsy. The 190 consecutive smear biopsies examined in this Institute during 1971 were reviewed and compared with subsequent paraffin sections of the same biopsies. In 94% of cases the correct diagnosis was obtained from the smears. Most of the errors stemmed from failure to distinguish between different types of malignant tumor. It is suggested that the smear technique is the most appropriate available for rapid neurosurgical diagnosis.