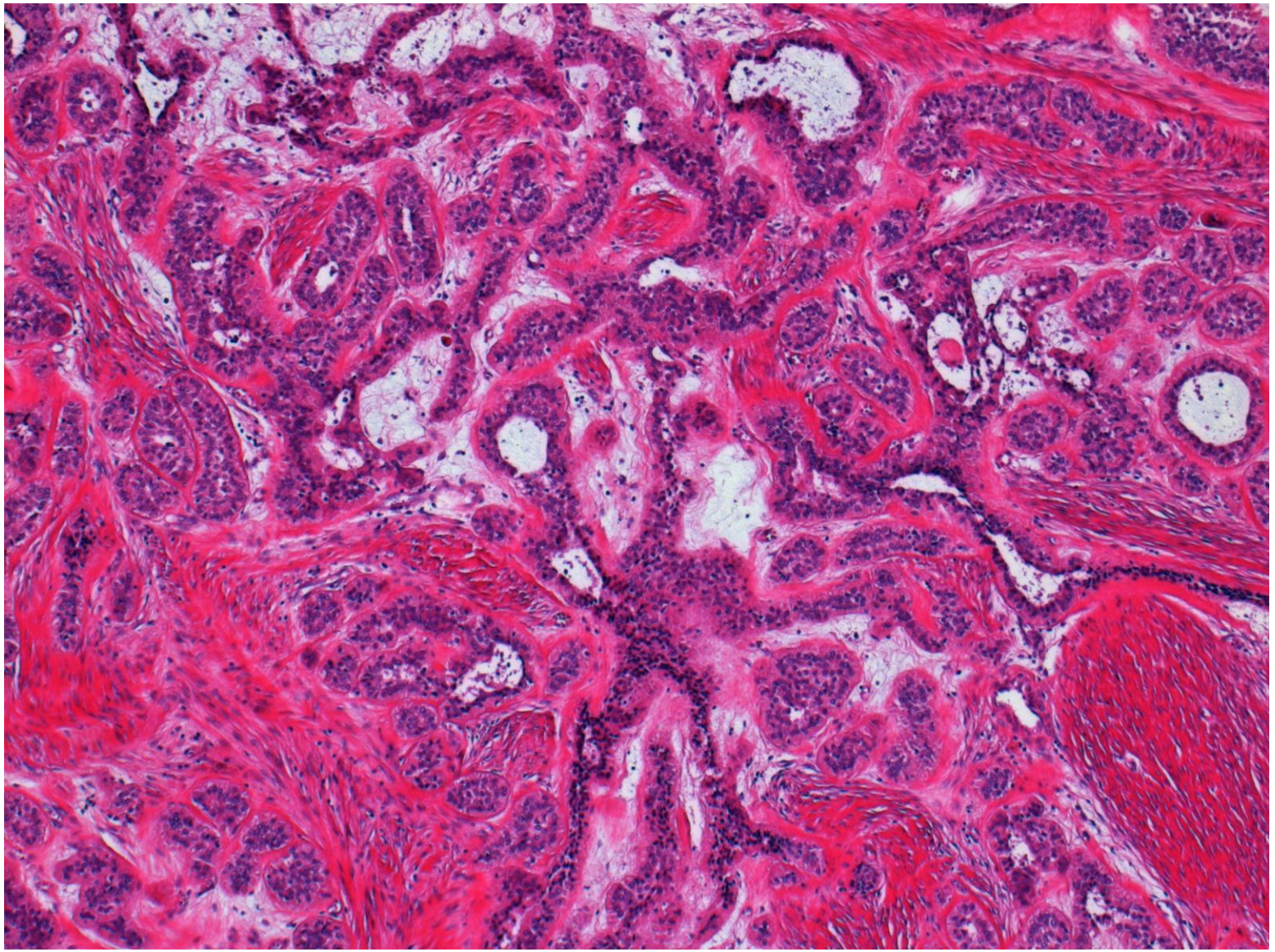
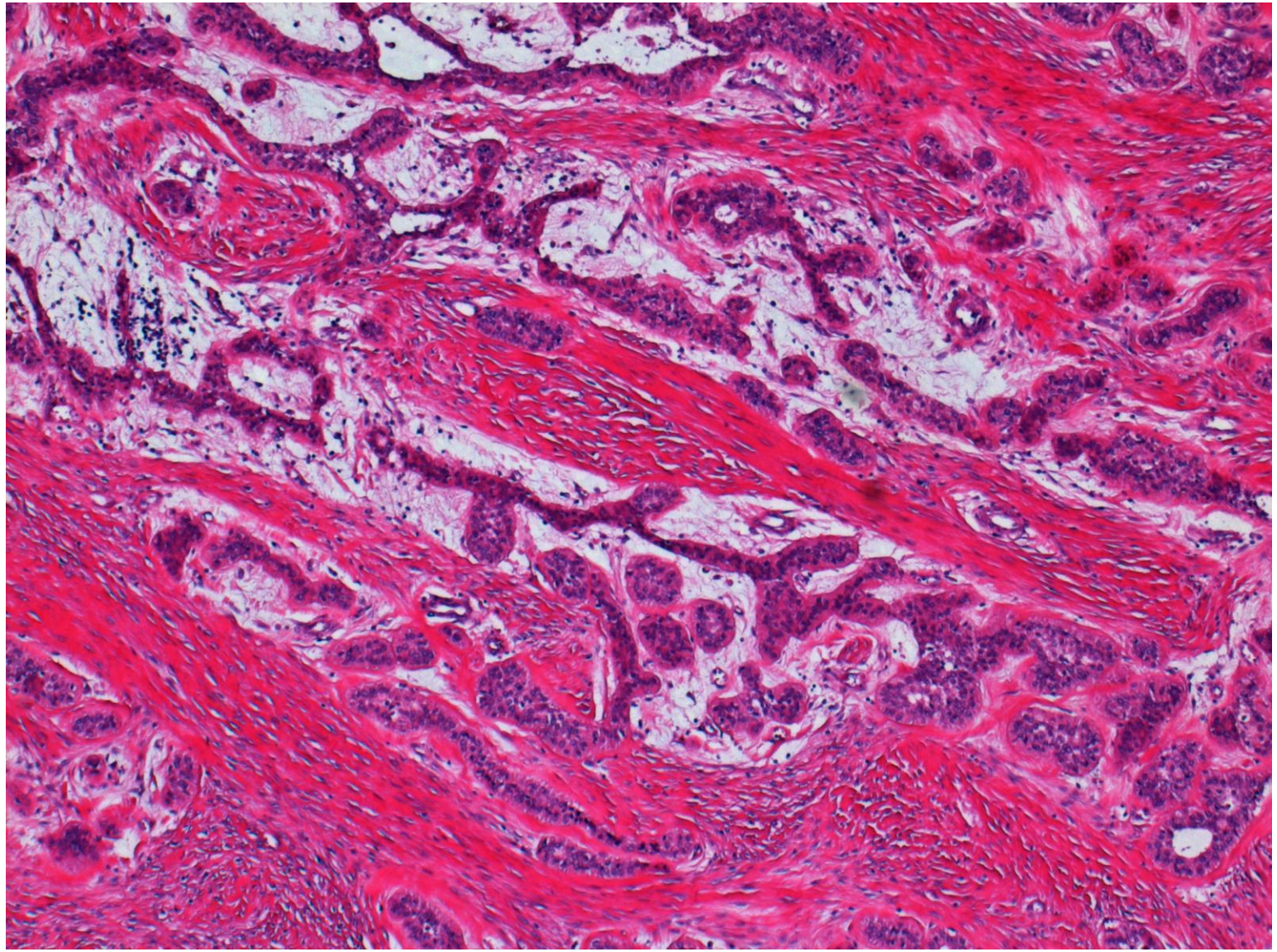
Granular ameloblastic fibroma

Ameloblastic fibroma is a true mixed tumor: both the epithelial and ectomesenchymal elements are neoplastic. Inductive change results in the deposition of dentin alone or dentin plus enamel, and terms ameloblastic fibrodentinoma and ameloblastic fibro-odontoma are used, respectively. Granular ameloblastic fibroma is a variant of benign odontogenic neoplasm characterized by odontogenic epithelium with granular eosinophilic cytoplasm embedded in a primitive ectomesenchymal fibrotic stroma resembling the dental papilla. The granular cells are arranged in lobules separated by thin, fibrous connective tissue septa. Within the lobule, small ovoid to elongated islands of cuboidal to columnar epithelial cells are observed.

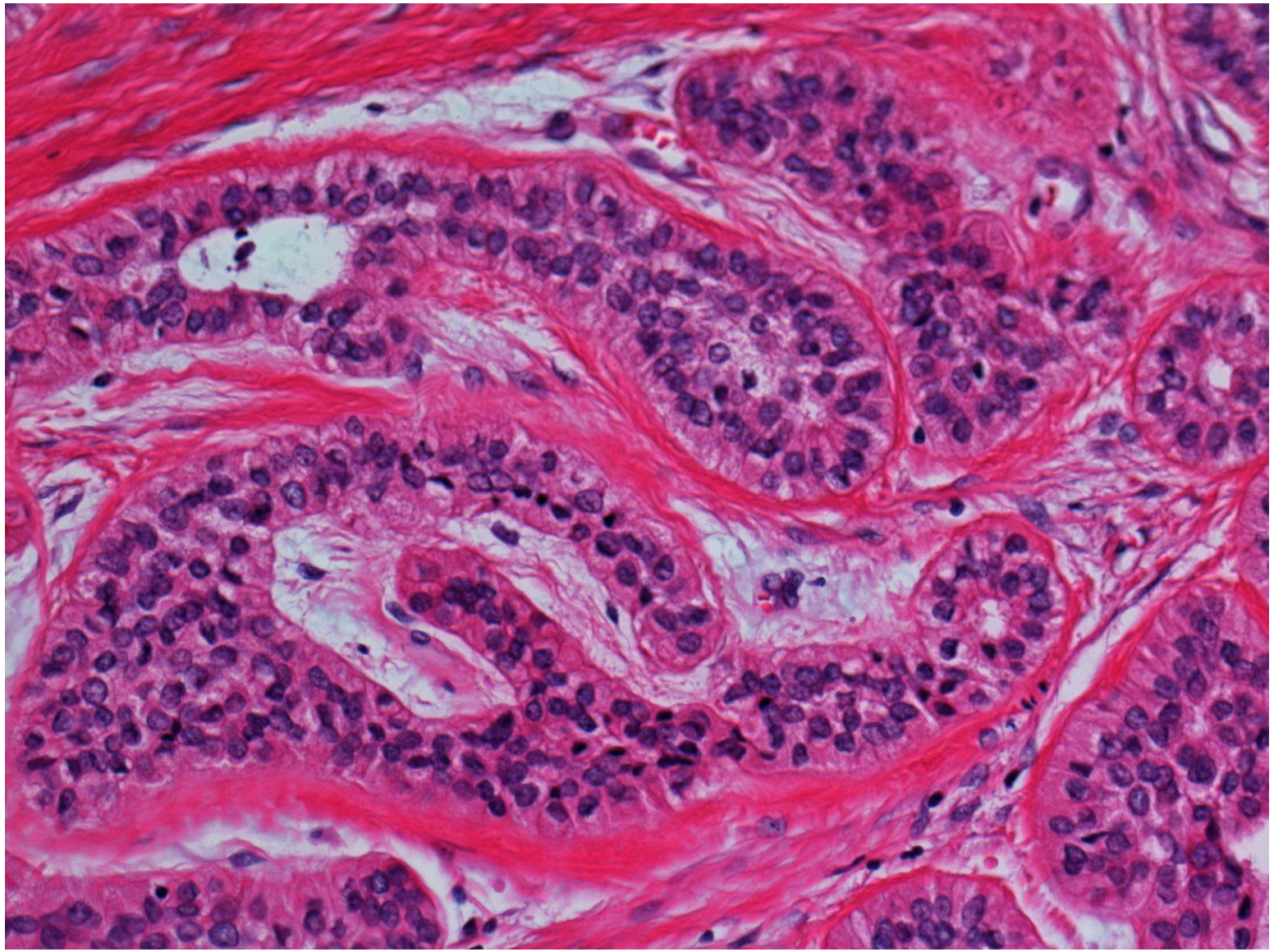
Ref.: Chi A. Ameloblastic fibroma, granular. In: Slootweg, P.J. (eds) Dental and Oral Pathology. Encyclopedia of Pathology. 2016; Springer, Cham. doi.: 10.1007/978-3-319-28085-1_652



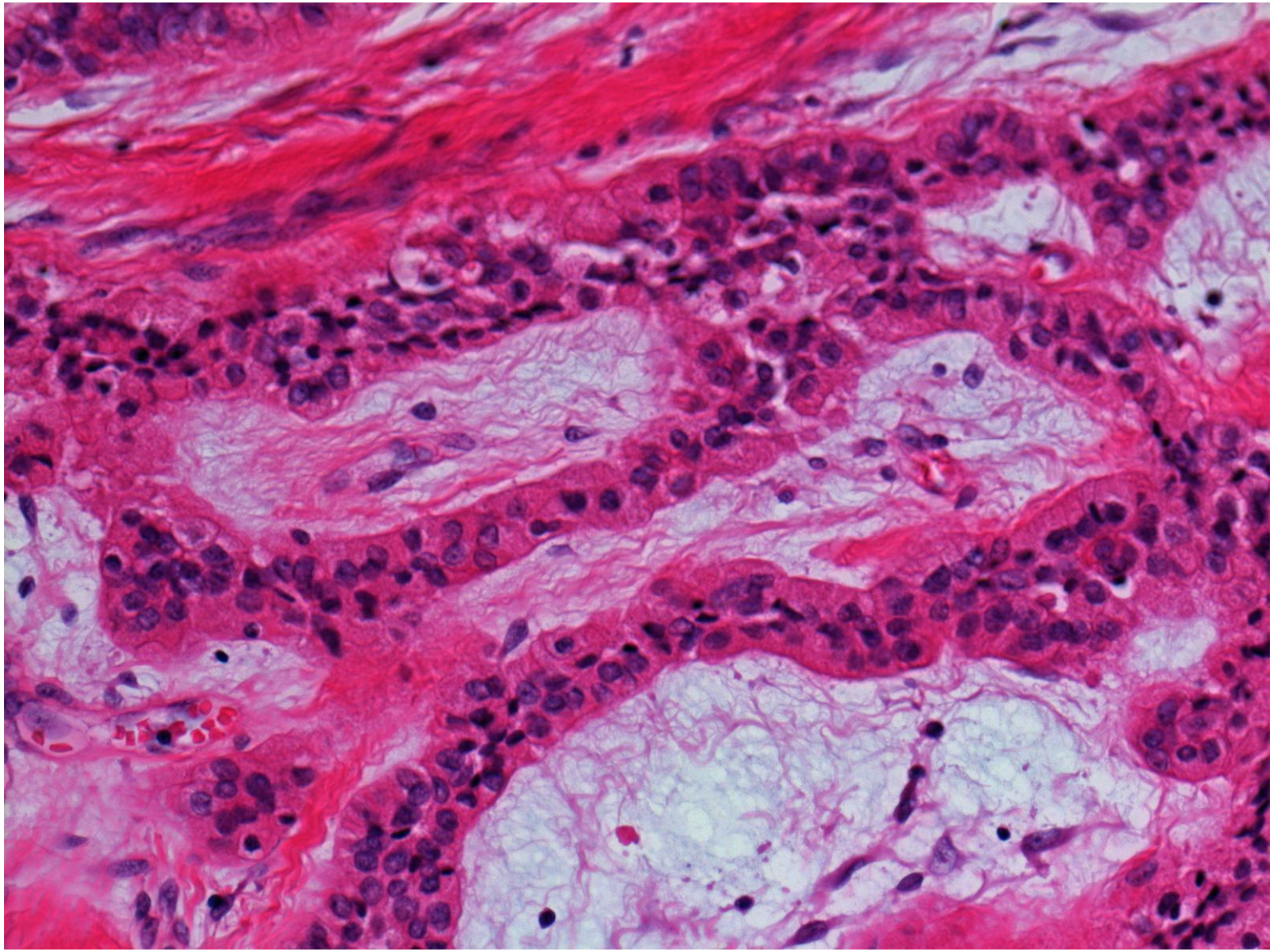
Granular ameloblastic fibroma seen in the mandible of a 14 y-o boy. Plexiform growth of odontogenic columnar epithelial cells are embedded in the myxoid and hyaline fibrous stroma (H&E-1).



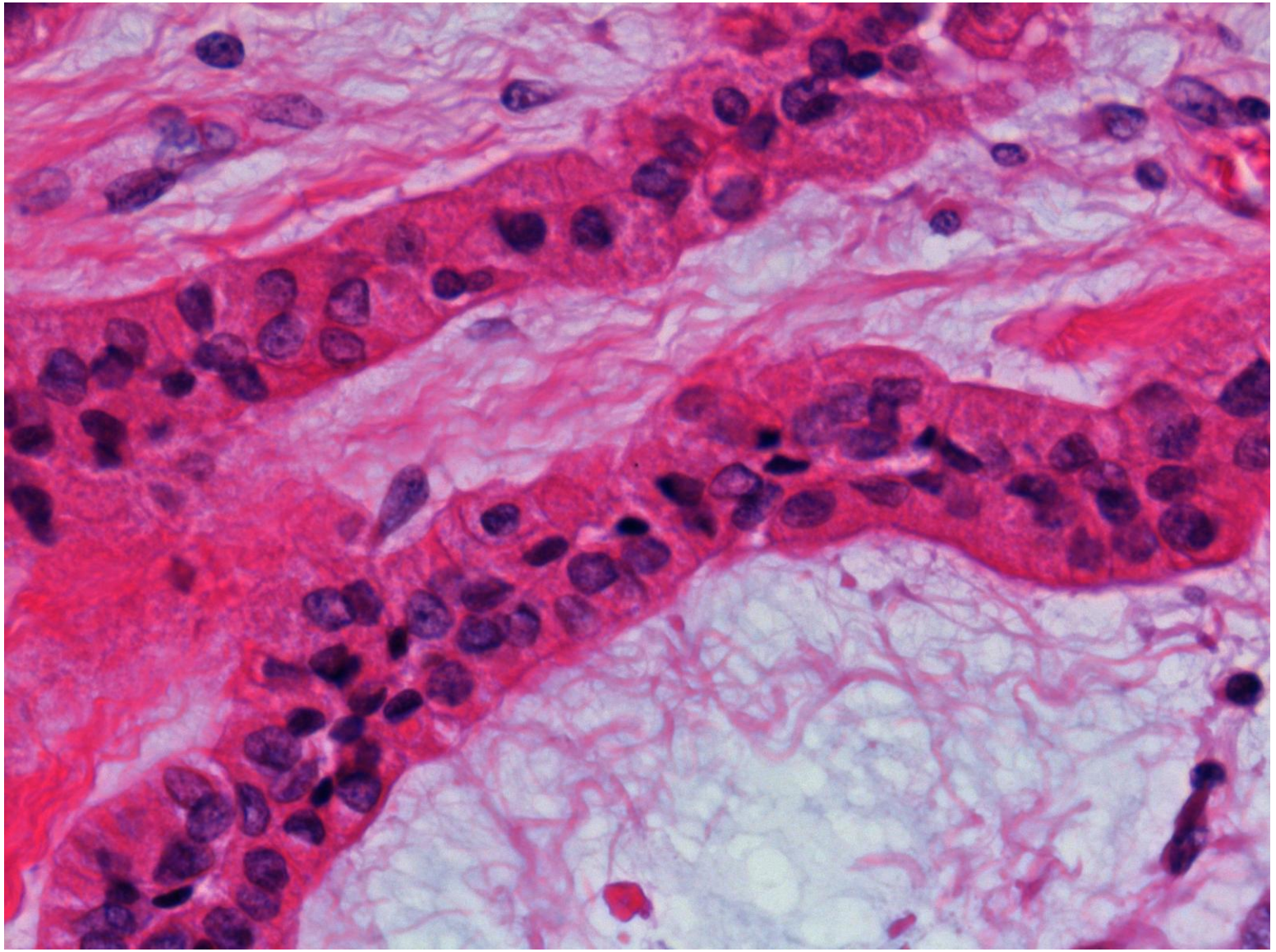
Granular ameloblastic fibroma seen in the mandible of a 14 y-o boy. Cords and islands of the plexiforming odontogenic columnar epithelial cells are surrounded by odontogenic myxoid stroma, and the lobules are separated by densely fibrous stroma (H&E-2).



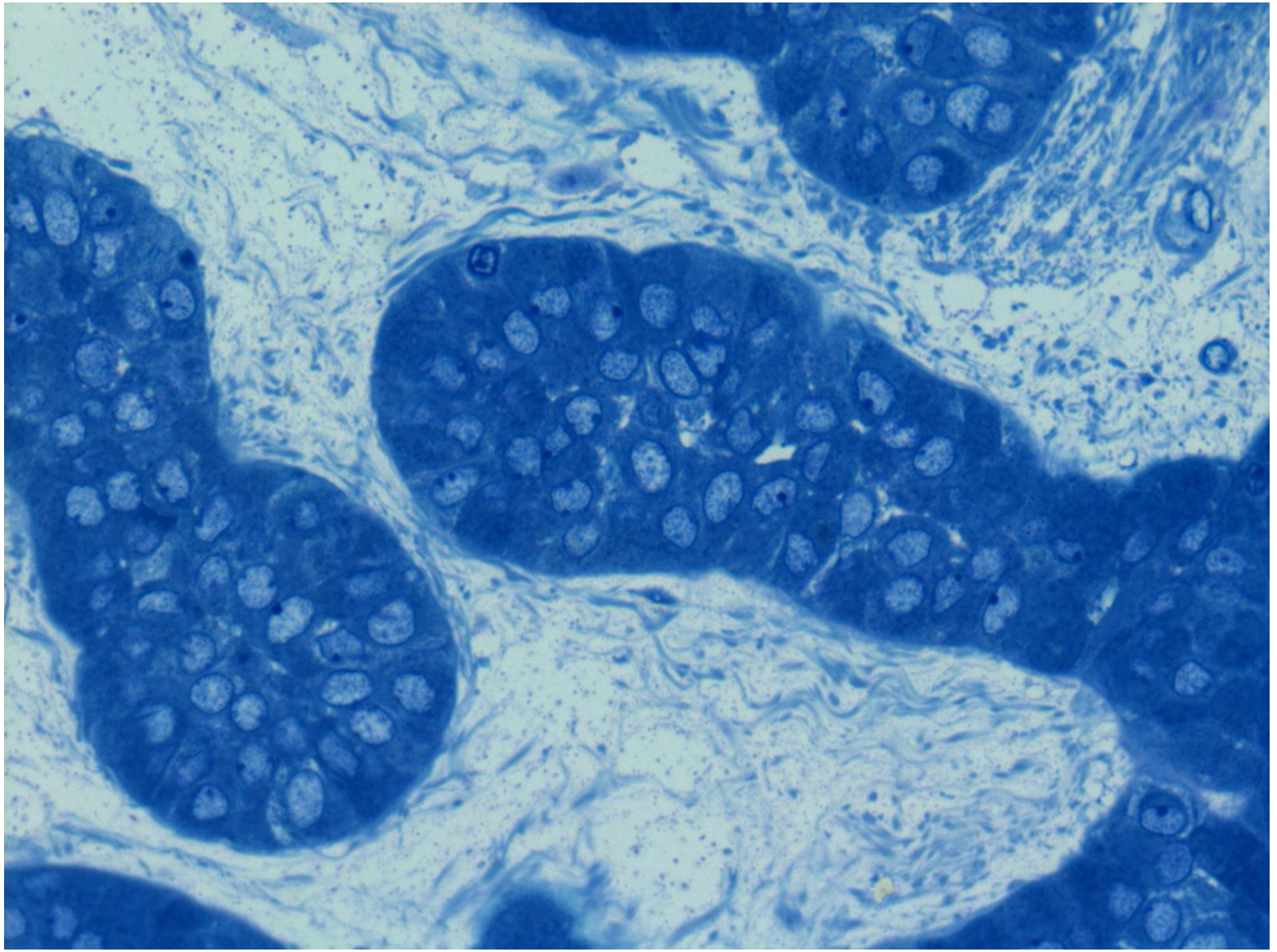
Granular ameloblastic fibroma seen in the mandible of a 14 y-o boy. The plexiforming odontogenic columnar epithelial cells possess eosinophilic granular cytoplasm. The epithelial cells are closely associated with the odontogenic myxoid stroma (H&E-3).



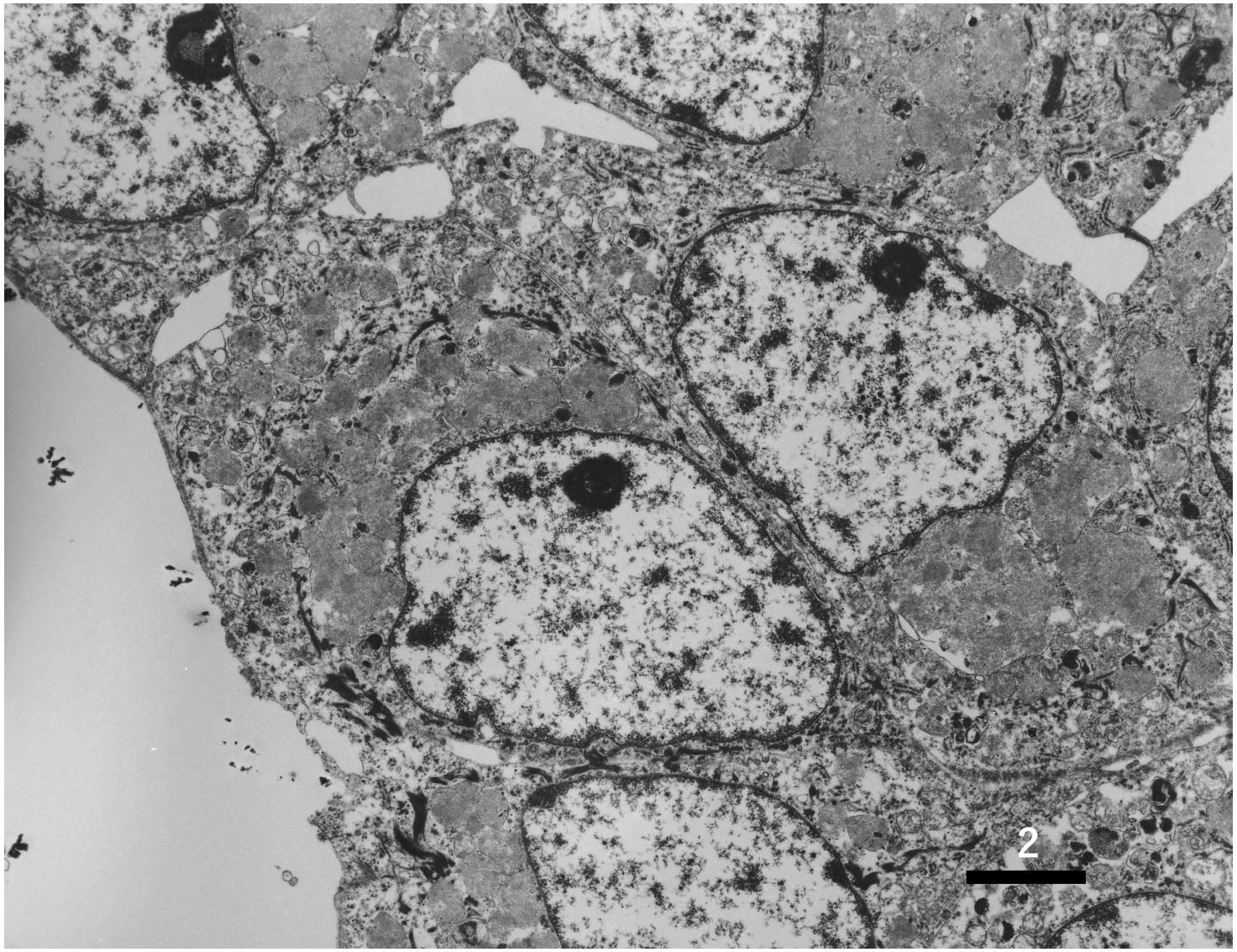
Granular ameloblastic fibroma seen in the mandible of a 14 y-o boy. The plexiforming odontogenic columnar epithelial cells possess eosinophilic granular cytoplasm. The epithelial cells are closely associated with the odontogenic myxoid stroma (H&E-4).



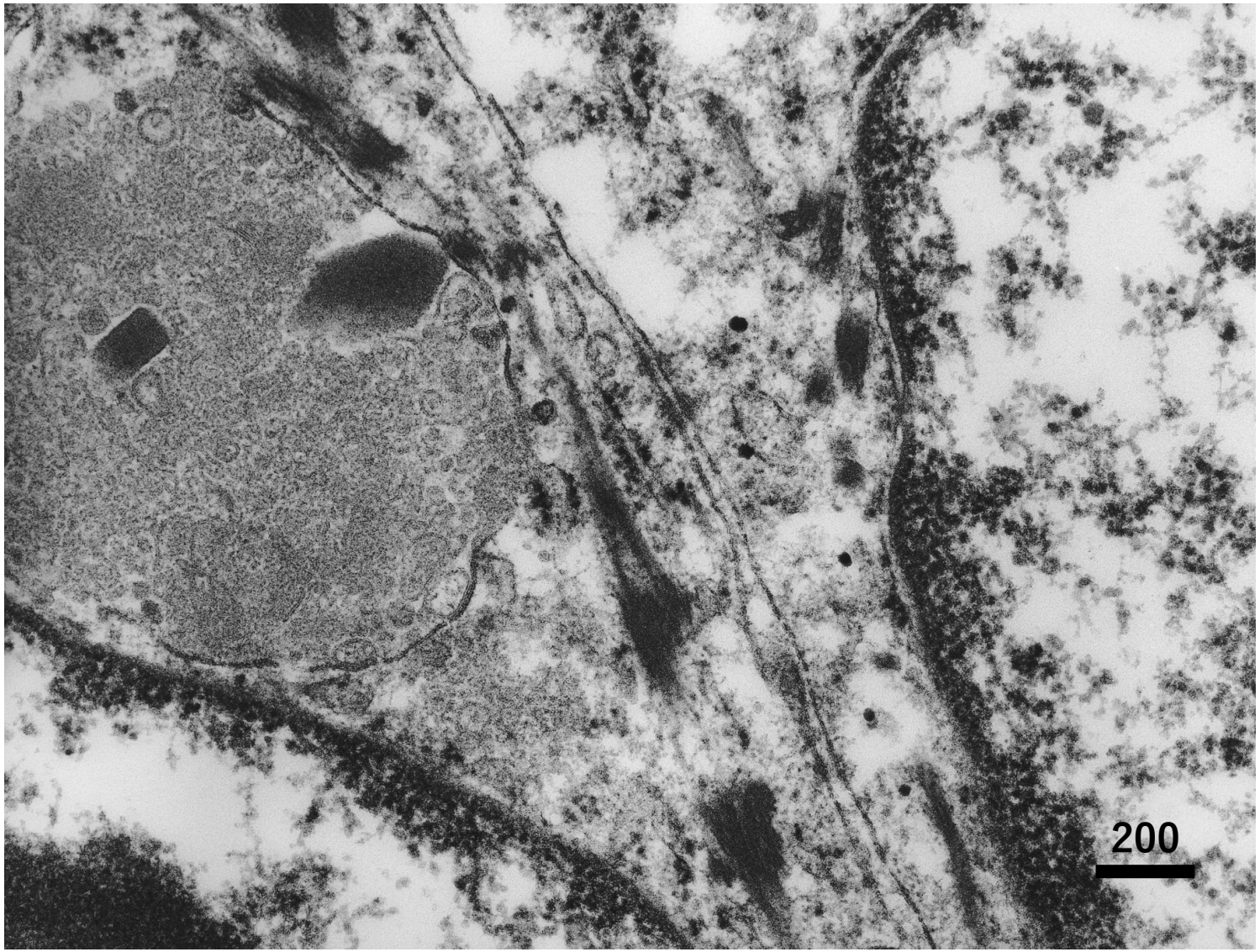
Granular ameloblastic fibroma seen in the mandible of a 14 y-o boy. The plexiforming odontogenic columnar epithelial cells possess eosinophilic granular cytoplasm. The epithelial cells are closely associated with the odontogenic myxoid stroma (H&E-5).



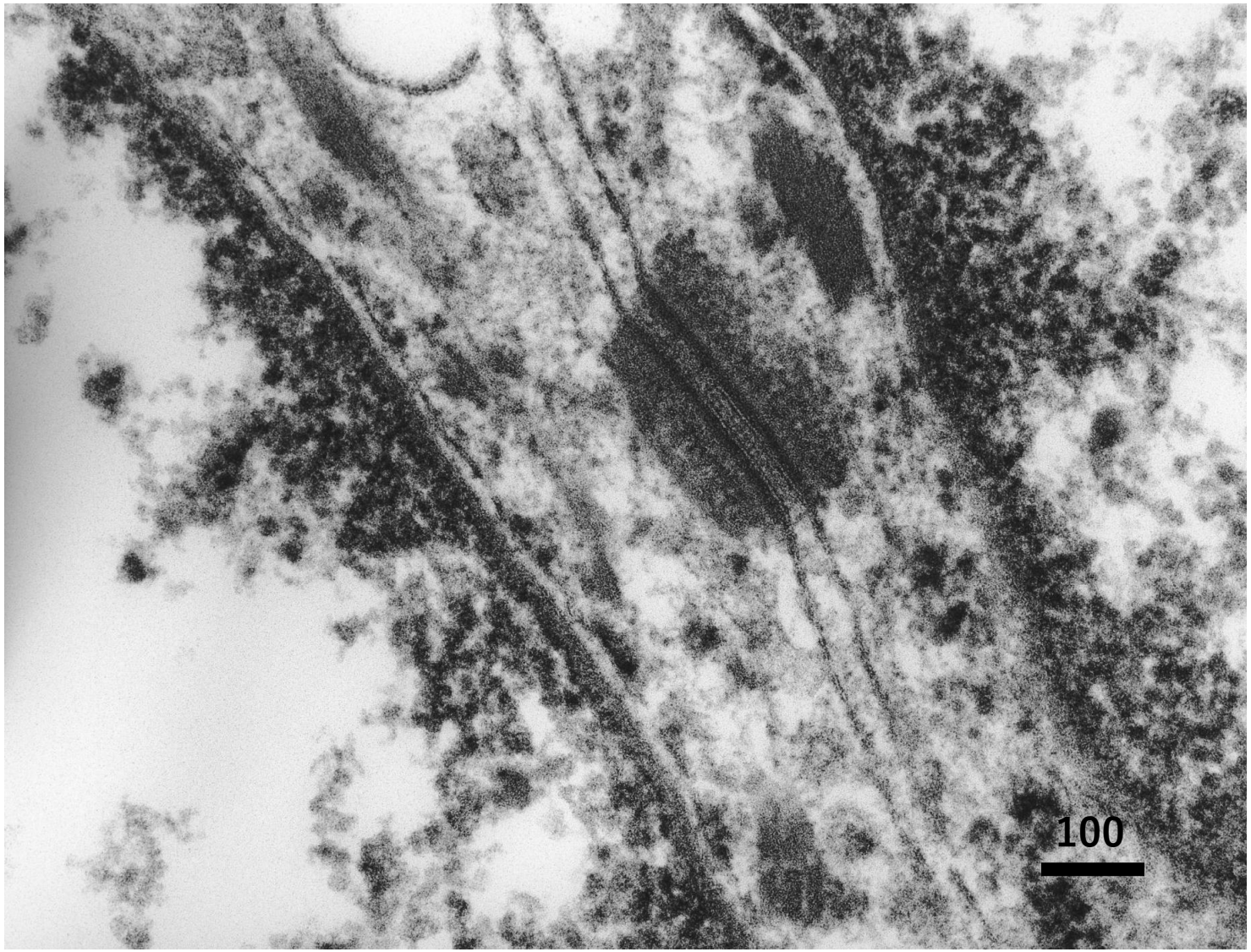
Granular ameloblastic fibroma seen in the mandible of a 14 y-o boy. The odontogenic myxoid stroma is clearly demonstrated. The odontogenic columnar epithelial cells possess granular cytoplasm (Toluidine blue in a thick section for EM study).



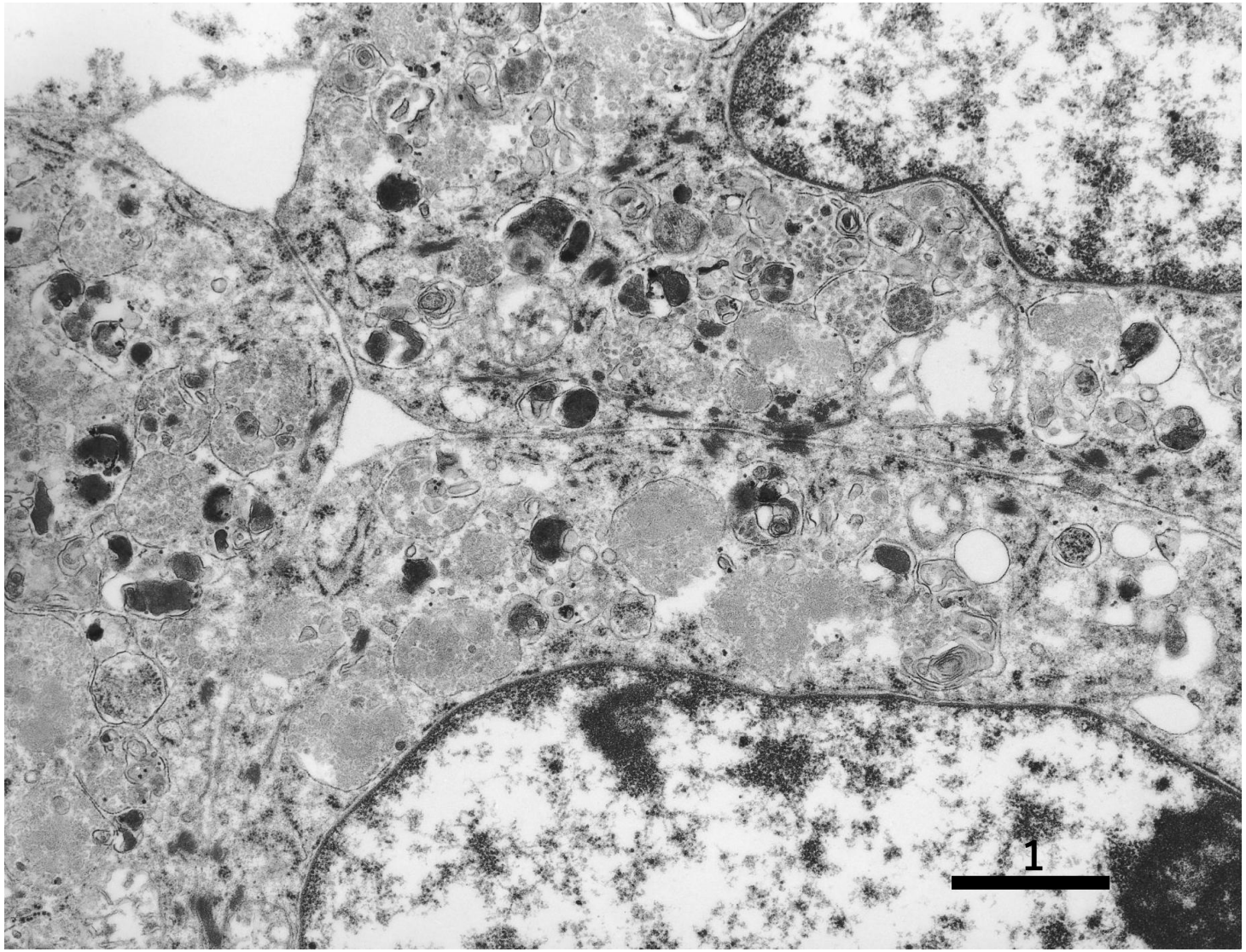
Ultrastructure of granular ameloblastic fibroma seen in the mandible of a 14 y-o boy. The odontogenic columnar epithelial cells possess numbers of lysosomal granules. Theround-shaped nuclei are monomorphic (TEM-1).



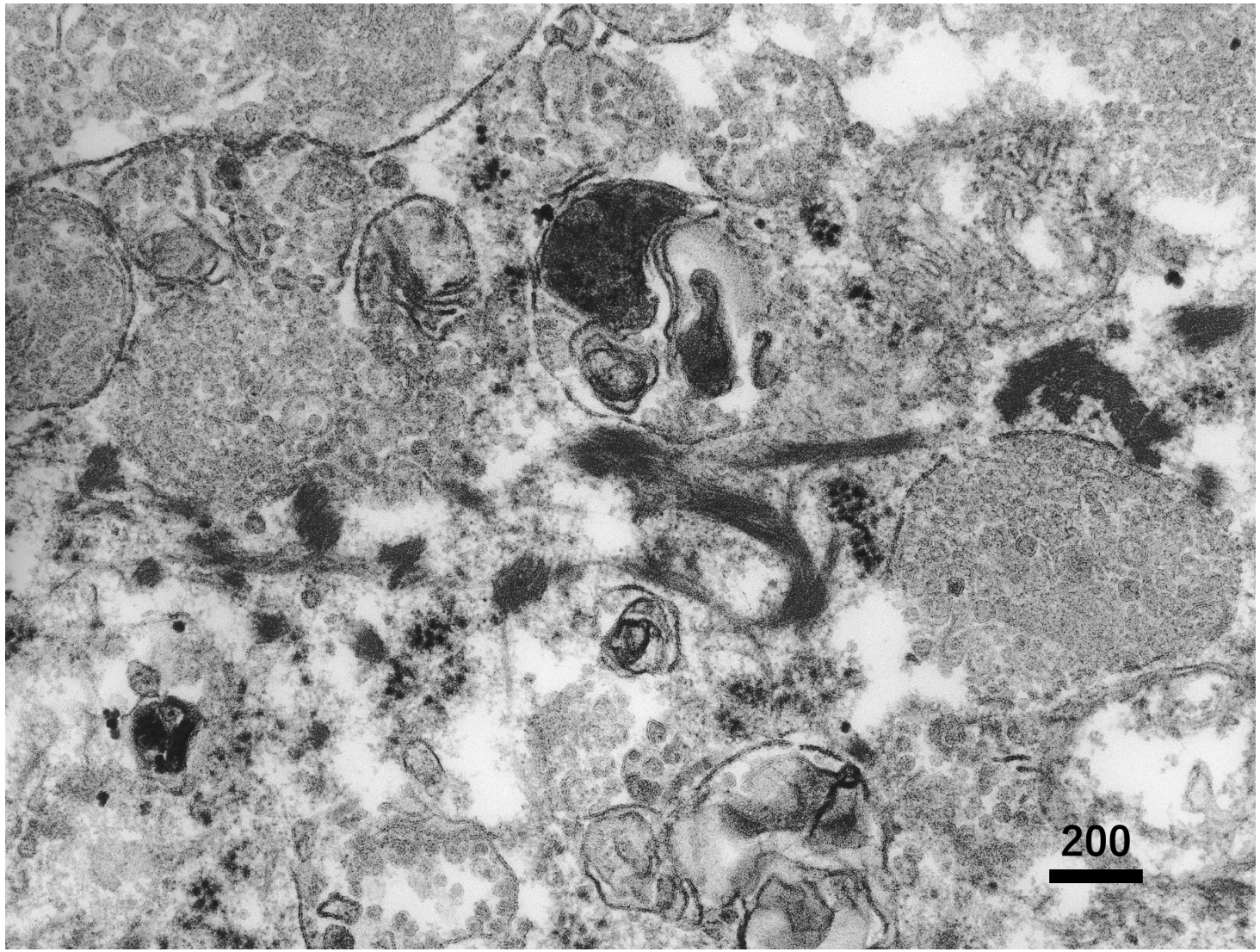
Ultrastructure of granular ameloblastic fibroma seen in the mandible of a 14 y-o boy. The odontogenic columnar epithelial cells contain tonofilaments bundles. A desmosomal attachment is discerned. A large-sized autophagosome is noted (TEM-2).



Ultrastructure of granular ameloblastic fibroma seen in the mandible of a 14 y-o boy. The odontogenic columnar epithelial cells contain tonofilaments bundles and form well-developed desmosome with extracellular core regions (TEM-3).



Ultrastructure of granular ameloblastic fibroma seen in the mandible of a 14 y-o boy. The odontogenic columnar epithelial cells contain numbers of autophagosomes in the cytoplasm. The granular appearance is caused by the activation of lysosomes (TEM-4).



Ultrastructure of granular ameloblastic fibroma seen in the mandible of a 14 y-o boy. The odontogenic columnar epithelial cells contain numbers of autophagosomes in the cytoplasm. The granular appearance is caused by the activation of lysosomes (TEM-5).