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DATE: 11 Nov. 2020

LECTURE NO - 11

B.Sc.(H) PART-II

PAPER III

PINUS - II: of the same plant. Cones
always develop on the shoots of current
year. Several male cones appear
in cluster whereas female cones may
be solitary or in a whorl on 2 to 4.

The male cone consists of an
axis on which microsporophylls
are spirally arranged. Each micro-
sporophyll bears two pollen sacs (micro-
sporangia) on its under surface.

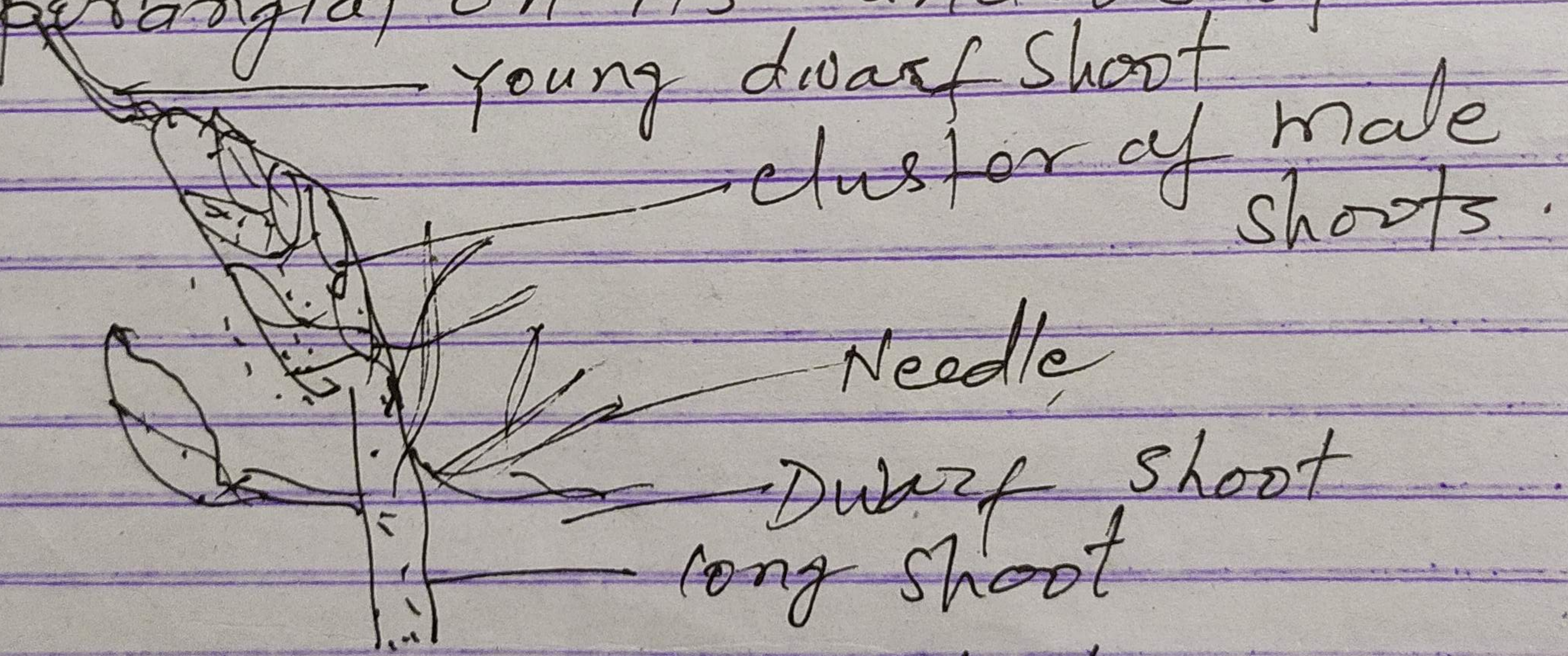


Fig male shoot of pinus
roxburghii

Each pollen sac forms
microspores and (or) pollen
grains by the meiosis of
microspore mother cells.

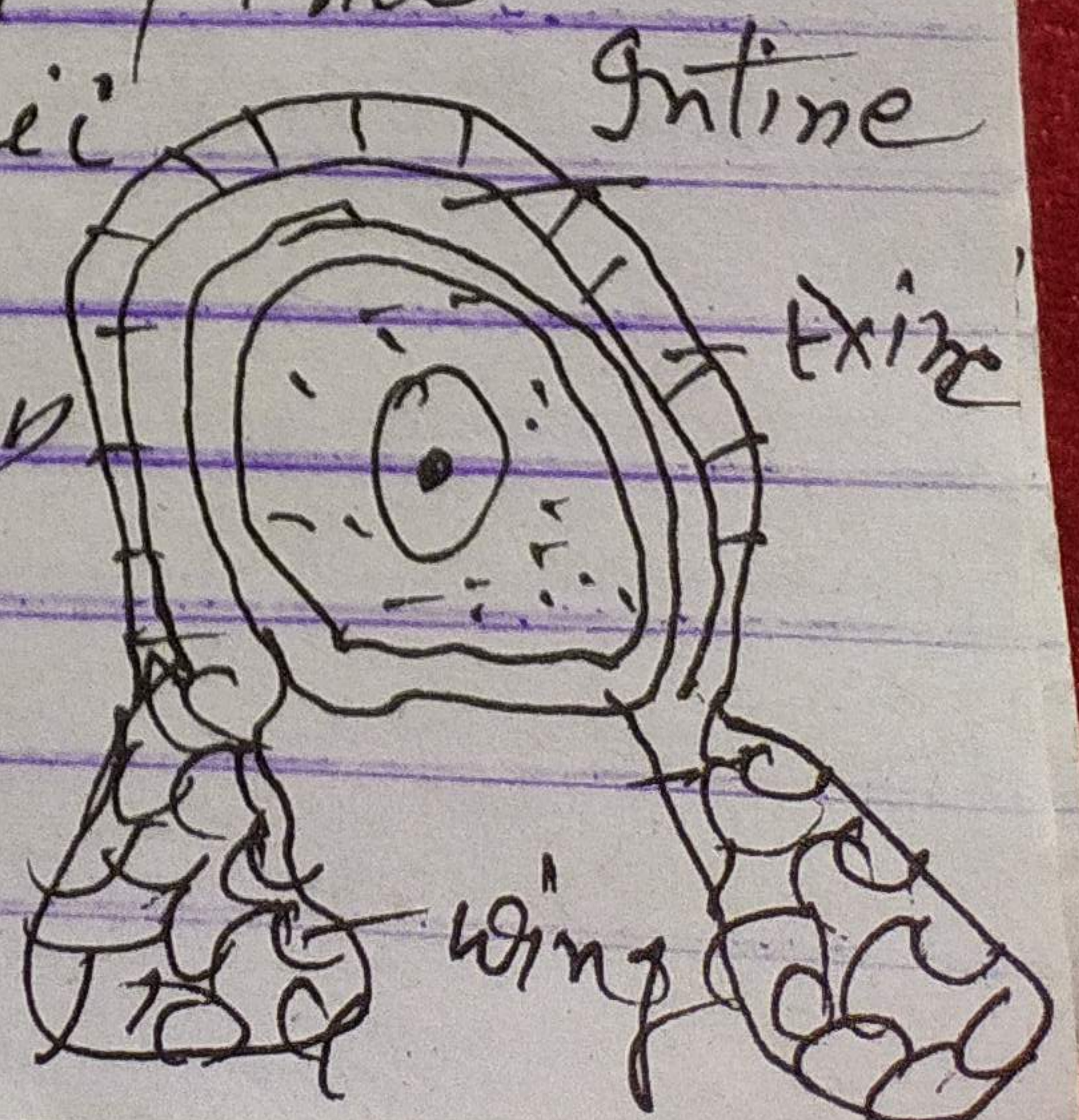


Fig - A pollen grain

The exine of the pollen grains forms a pair of inflated wings which help in wind pollination. The female cone consists of an axis on which bracts are spirally arranged. In the axis of each bract ovuliferous scale originates. At the base of each ovuliferous scale. On its upper surface there occur two anatropous ovules. The ovule of pinus resembles with that of cycas in its general structure.

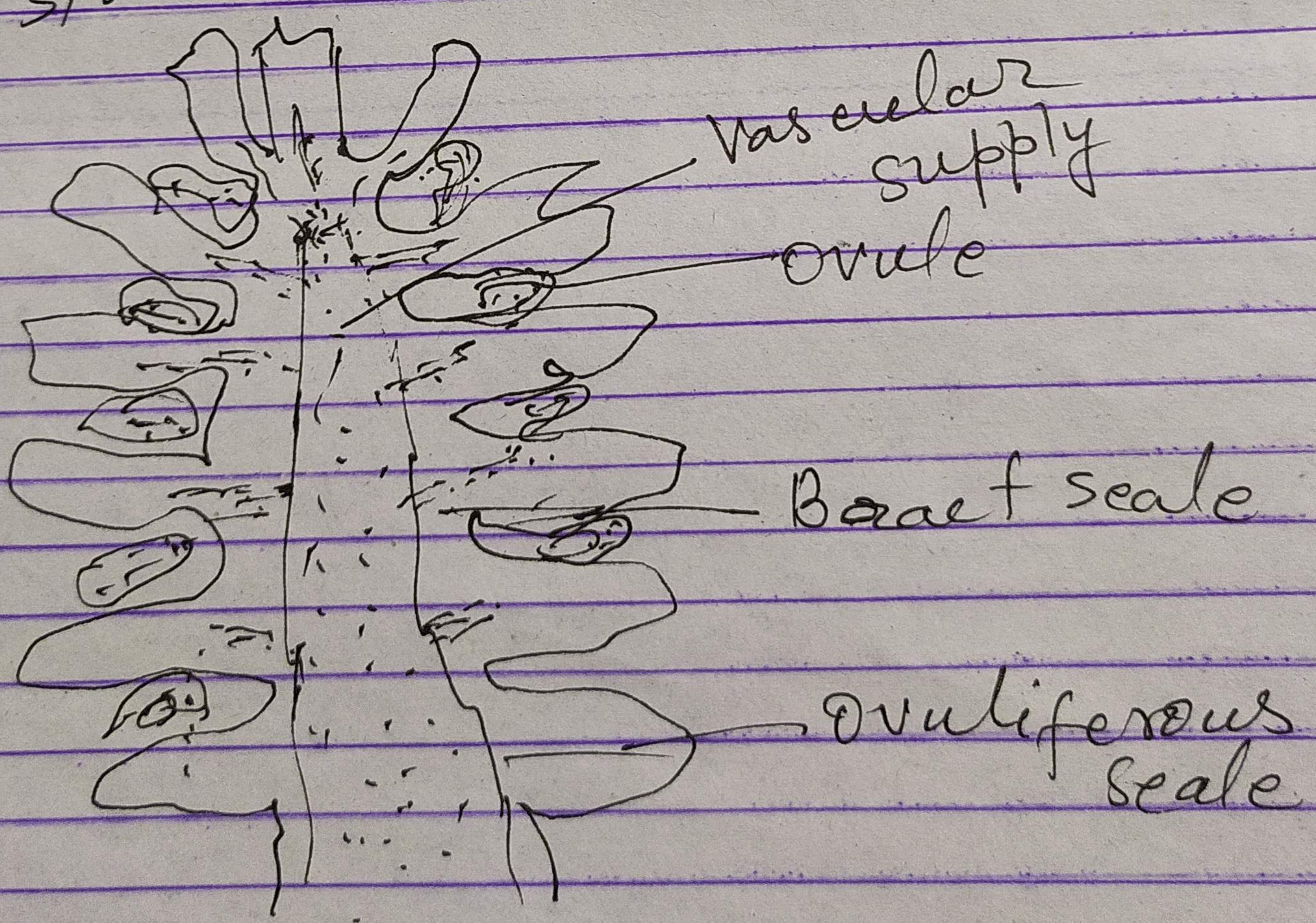


fig. L.S. of female cone