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CAVITIES IN PARS DISTALIS OF PITUITARY GLAND IN *CHANNA PUNCTATUS* (BLOCH)

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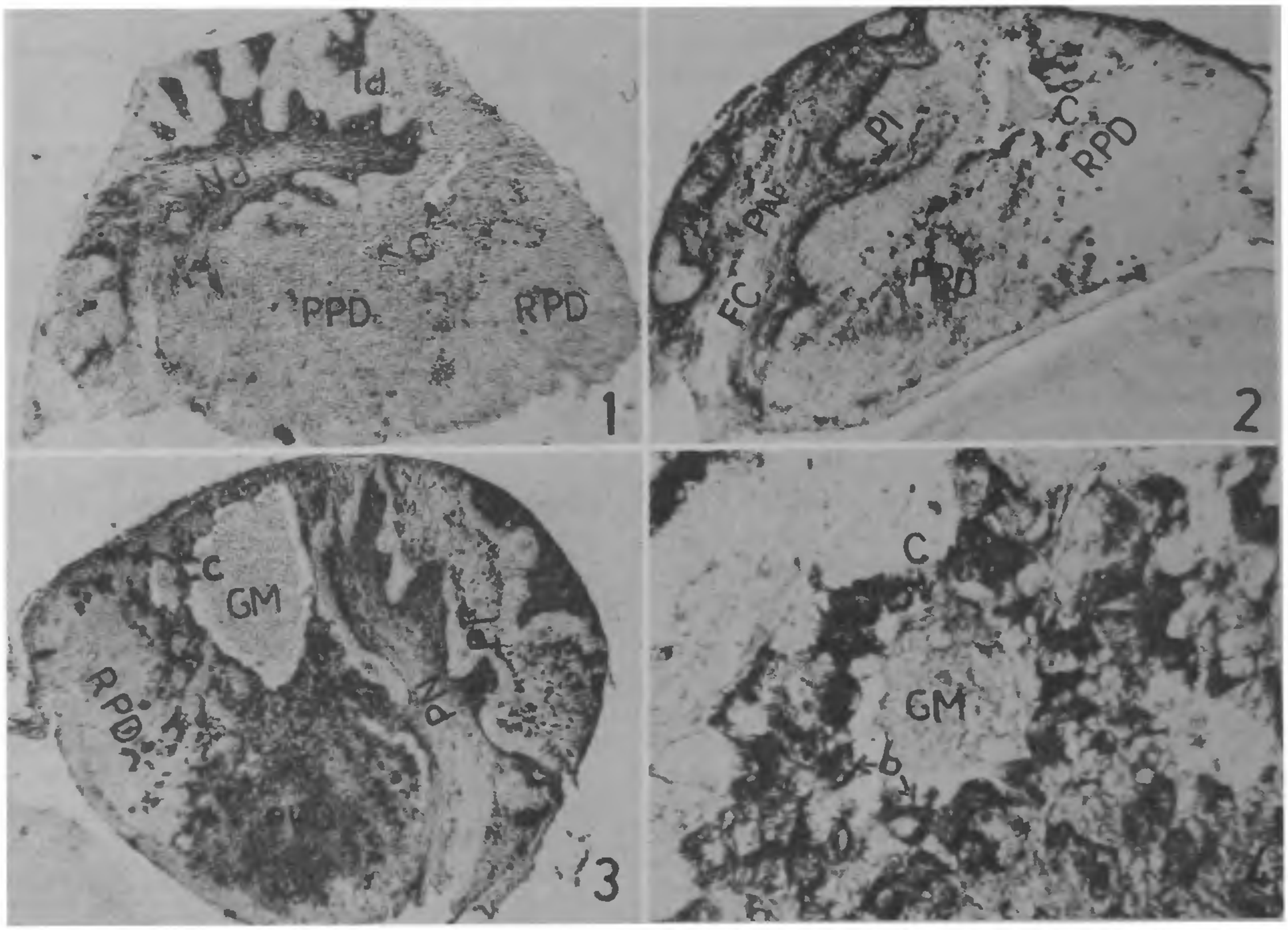
DOCUMENTATION on the structure of pituitary gland is extensive. But reports on the occurrence of cavities in the gland are scanty. Sahai[1] claimed first report of such cavities in fish during her work on *Ambassis ranga*. But a review of literature suggests that such occurrence was reported in 1942 by Kerr[2,3] in pars anterior in acipenser, lepidosteus, amia, eel and trout, Tampi[4] in *Chanos chanos*, Sathyanesan[5] in *Pangassius pangassius*



Figures 1–4. Longitudinal section of pituitary gland. **1.** Smaller cavities (c) during post-spwawning period. **2.** Large cavity (c) during pre-spawning period and fundibular cavity (FC) **3.** Small and large cavity (c) bordered by basophils (b) and granular mass during spawning period. RPD = Rostral pars distalis; PPD = Proximal pars distalis; PI = Pars intermedia; PN = Pars nervosa; GM = Granular mass. **4.**. Magnified view of cavity (c) showing basophils bordering (b) and granular mass (GM).

and Robertson and Wexler[6] in trout and salmon.

In pars distalis (rostral pars distalis, RPD and proximal pars distalis, PPD) of *Channa punctatus* peculiar cavities have been observed (figures 1–4). Their number is largest in PPD and less in RPD. Such cavities are, however, completely absent in pars intermedia (= PI). Narrow extensions of infundibular cavities have also been observed to occur in pars nervosa (PN) (figure 2). The cavities of pars distalis may be in small or large numbers or may exist as a single large cavity occupying sometimes a very large portion of the region (figures 1 & 3). These cavities are filled with *AF*-positive fluid and bordered by basophils (figure 4).

Although Sathyanesan[5] observed narrow extensions of infundibular cavities in pars nervosa of *Channa punctatus* (which are recorded in the PN of pituitary gland of *C. punctatus* during the present studies), he did not report the occurrence of any such cavities in its pars distalis. Qazi and Faruqi[7], in their studies on *C. punctatus* pituitary, have not mentioned the occurrence of any such cavities in pars distalis. Prasada Rao[8] also did not indicate the occurrence of cavities in pars distalis of *C. punctatus*. Swarup and Srivastava,[9] however, reported the occurrence of neurohypophysial vesicles in the pituitary gland of *C. striatus* and *C. marulius*. They related them with the feedback of information to the hypothalamus.

Sahai[1], while reporting the occurrence of cavities in *A. ranga*, states that these are filled with a fluid very much similar to that of third ventricle; the third ventricle and pars distalis are located far apart, and since a definite hypophysial stalk is absent in *A. ranga* (Sahai *op. cit.*[1]) an access to fluid, similar to third ventricle is not understood. Cavities in *Channa punctatus* on the contrary have been observed to be filled by AF and CHA positive material, similar in staining affinity to that of basophils (= gonadotrops) of proximal pars distalis. None of the earlier workers who reported the occurrence of cavities in pituitary gland discussed about this aspect of cavities.

Sahai[1] observed an increase in the number and size of cavities during spawning and post-spawning period and related them with the degranulation of basophils. She, however, denied any relation of these cavities with the gonadal cycle on the basis, that these cavities are present even during preparatory and pre-sprawning period. This statement is again not clear. Since on the one hand she related them with degranulation of basophils during spawning and post-spawning, on the other, she is denying any direct relation with gonadal cycle. An increase in the number and size of the cavities, bordered by PAS and AF +ve heavily granulated basophils is observed presently in *C. punctatus* during pre-spawning and spawning period. The granular mass lying in the cavities also marks an increase in its affinity to AF and CHA. The aforesaid observations while disagreeing with those of Sahai[1] suggest a definite correlation between these hypophyseal cavities and gonadal cycle in *C. punctatus*. Decrease in the number and size of the cavities during post-spawning period may be associated with recovery of gonadotrophic component of pituitary.

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