The Secretion of Mucus

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My communication was largely concerned with an investigation by autoradiographic methods of the incorporation of ^{35}S in the form of sulphate in the mucins within the various types of mucous cells in the stomach and intestine. A number of slides were shown and in the absence of illustrations it is only possible to summarise the paper in the form of conclusions.

(1) The gastro-intestinal tracts of rats, mice, cats, rabbits and guinea-pigs were examined by autoradiography following the intravenous injection of $\text{Na}^{235}\text{S}04$.

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^{35}S is incorporated in the mucin of the goblet cells of all species. It appears that mucin is being elaborated at the same time as it is being discharged from these cells.

^{35}S does not appear in the surface epithelium of the stomach in any species.

Particularly in the rat, the epithelium at the bases of the gastric foveolae becomes very radioactive and radioactive mucin is discharged from it into the lumen of the stomach. In the cat no radioactivity was found in this region.

Mucoid neck cells do not appear to take up much ^{35}S .

(6) The pyloric glands of some species, e.g. the rat, mouse and cat, accumulate ^{35}S .

Brunner's glands in the rat, mouse and cat take up practically no ^{35}S . Thus there is probably a sharp distinction between the mucous cells of the pyloric portion of the stomach and of Brunner's glands.

Brunner's glands of the guinea-pig and to a less extent of the rabbits segregate ^{35}S .

There are good reasons for supposing that Brunner's glands are under the control of a hormone but whether this is secretin or not still awaits definitive proof.

Discussion

Dr. Watkinson: I wonder if Sir Howard Florey has any observations to make on the secretion of Brunner's glands in the duodenum in experimental ulcer? The administration of cinchophen to the dog invariably induces chronic ulceration in the region of the pyloric antrum. Ivy and his co-workers demonstrated histological changes in these glands after ulceration had occurred, these changes being confirmed by Maher of the Mayo Clinic who interpreted the changes as those of hyper-secretion and exhaustion of the glands. Excision of the first part of the duodenum where most of the glands are located appeared to protect dogs from cinchophen ulcer as prolonged and intensive administration of the drug had to date failed to induce the ulcer.

Dr. Sírcus: It must be considered that mucus is penetrated by H^+ ions or hydrochloric acid, and by pepsin, since the entire internal surface of the viscus is covered with a layer of mucus through which the discharging acid and pepsin must pass to enter the lumen.

Sir Howard Florey: I am afraid I do not understand. What Dr. Sircus says is not necessarily true, because the hydrochloric acid and the pepsin could come through actual breaks in the surface layer of mucus in the stomach. They almost certainly do not diffuse through it.