Zusammenfassung. Untersuchungen der Histaminproduktion bei der trächtigen Maus ergaben eine Steigerung, die in der ersten Woche beginnt und bis zu 3 Wochen nach der Geburt der Jungen anhält. Die Aktivität des Enzymsystems, Histidindecarboxylase, ist während dieser Zeit erhöht, zuerst in der Niere der Mutter und danach in den Foeten. Die foetale Enzymaktivität ist am 19. Tage maximal. Versuche mit Substanzen, die die Enzyme hemmen, deuten auf eine spezifische Histidindecarboxylase hin.

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Salivary Secretion in Dogs during Degeneration of Postganglionic Parasympathetic Nerve Fibres

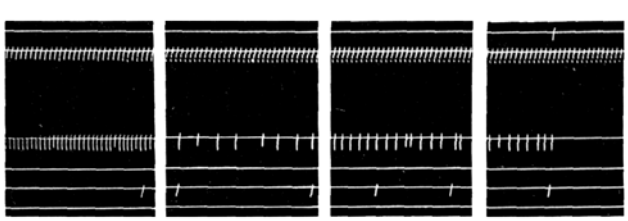
If the parotid duct of a cat is cannulated 1–3 days after section of the auriculo-temporal fibres, a flow of saliva is detected which occurs in bursts and is abolished by parasympatholytic agents[1]. A similar, though seldom paroxysmal, 'degeneration secretion' can be seen from the submaxillary and sublingual glands of the cat after postganglionic parasympathetic denervation. It is particularly rapid if the gland cells have been made supersensitive to stimulating agents by previous section of the preganglionic parasympathetic fibres[2]. The 'degeneration secretion' is assumed to be due to acetylcholine released from the endings of the degenerating cholinergic fibres.

It seemed of interest to determine whether 'degeneration secretion' could be found in other animals than the cat, and 14 dogs were chosen for the present study. In most cases the submaxillary and sublingual glands of one side were sensitized by preganglionic parasympathetic denervation (section of the chordalingual nerve). After a period of at least 3 weeks, a partial postganglionic denervation was then carried out by dissecting the chorda tympani along the salivary ducts and cutting it as close to the glands as possible. These two operations were carried out under pentothal anaesthesia (about 30 mg pentothal sodium/kg intravenously). The final acute experiment was started 27–67 h after the second operation and chloralose anaesthesia was used (about 80 mg/kg intravenously after induction with ether). The two submaxillary ducts, and in some cases the two sublingual ducts, were cannulated in the neck using fine glass cannulae. Saliva was always found to flow from the submaxillary and sublingual glands of the operated side. The Figure shows a typical experiment started 44 h after dissection of the chorda.

The secretion was irregular, as in the submaxillary and sublingual glands of the cat. Real bursts of activity with intervening periods of quiescence, as seen in the parotid gland of the cat, appeared in some dogs only. When the experiment was carried out 27–33 h after the postganglionic denervation, the flow of submaxillary saliva was extremely slow. After 42–52 h it seemed to be at its maximum. In a dog studied 67 h after dissection of the chorda, a relatively slow 'degeneration secretion' was still present but it decreased in rate during the following 6 h. In the cat the 'degeneration secretion' from the submaxillary gland reaches a maximum 25–30 h after postganglionic section and ceases after about 62 h[3].

The 'degeneration secretion' could always be abolished by a parasympatholytic agent, Hoechst 9980 ($\alpha\alpha$-diphenyl-γ-piperidinobutyramide). The effect of this drug is evident in the Figure. It suggests that the secretion, like that found in the cat, is caused by acetylcholine, and it would seem reasonable to assume this acetylcholine to originate from the endings of the degenerating postganglionic parasympathetic fibres.

The secretion described was not a result of the preganglionic denervation, carried out in advance in most cases in order to sensitize the glands. In two control experiments in which no dissection of the chorda was made but where the acute experiment was performed 3 weeks after section of the chordalingual nerve, there was no salivary flow from the decentralized glands. 'Paralytic secretion', described by BERNARD[4] as an effect of section of the chorda, is only obtained under experimental conditions which involve a pronounced release of catechol amines from the adrenal medulla. It is not seen in dogs or cats under chloralose anaesthesia (EMMELIN[5]). The sole effect of the preganglionic denervation in the present experiments was to render the gland cells more sensitive to the acetylcholine liberated from the degenerating postganglionic fibres. The 'degeneration secretion' was thereby made easier to detect. It was found, however, that sensitization is not an essential component of the phenomenon and that some secretion can be seen after dissection of the chorda, even if no preganglionic denervation has been made in advance.



'Degeneration secretion' from right submaxillary and sublingual glands. Right chorda-lingual nerve cut 5 weeks previously. Records from above downwards: signal; time in min; secretion from right submaxillary; left submaxillary; right sublingual; left sublingual gland. First section of the Figure started 14 h, second 16, third 19, and fourth 51 h after dissection of the right chorda. At the signal 1 mg Hoechst 9980/kg was given intravenously and the secretions have been abolished.

Zusammenfassung. Eine sogenannte Degenerationssekretion erscheint beim Hund in den Tagen nach der postganglionär-parasympathischen Denervierung der Submaxillaris- und Sublingualisdrüsen.

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