

SUMMARY

ON THE ESOPHAGEAL GROOVE REFLEX

The esophageal groove contraction has been examined by *electromyography* in sheep fitted with an abomasal fistula : four lambs and four 12-month old sheep trained to suck from a teat-bottle. Sodium salicylate (5 p. 100 W/V, 10 ml/kg) was used to indicate the *direct passage of the liquid* into the abomasum, in the young as well as in the adult sheep. Two experimental procedures were used : a) the influence of showing the teat-bottle in the lamb upon the transit of the liquid injected into the lower esophagus, b) the effect of sucking in the trained adult sheep upon the amount of salicylated derivatives collected at the abomasal fistula.

1. The esophageal groove contracts with two distinct movements. First, by shortening, the right and left lips become firmly opposed allowing direct passage of 30 to 40 p. 100 of the volume of liquid towards the abomasum. Then, the closure can be complete if the lips are inverted, mainly the right lip. In this case, 75 to 90 p. 100 of the liquid ingested is recovered in the abomasum. This direct passage of liquid during sucking in the adult sheep is accompanied by a *momentary and immediate inhibition of rumino-reticular contractions*. The volume consumed seemed unimportant in this phase of inhibition which is not related with an abomasal distension.

2. The volume of liquid collected in the abomasum during sucking in adult sheep corresponds to 86.4 p. 100 of the ingested volume and contains 73.3 p. 100 of salicylated derivatives. These values are comparable to those found in the lamb : 92,5 p. 100 of the ingested liquid and 72.3 p. 100 of the salicylated derivatives. When the liquid is administered into the lower esophagus of the lamb, the volume collected constitutes 20 p. 100 and contains 16,6 p. 100 salicylated derivatives. The *increased excitability provoked by showing the teat-bottle* is sufficient, in a trained subject, to double or triple the volume of liquid collected at the abomasal fistula after it was administered into the lower esophagus. The electromyogram then indicates an efficient closure of the groove.

These results show that the behavioural response to the sucking situation is induced by other stimuli than those of oropharyngeal origin and that a more or less complete closure of the esophageal groove is not more than one of its components.

**RÉGULATION DE LA MOTRICITÉ
DE LA RÉGION ŒSOPHAGO-GASTRIQUE (CARDIA)
CHEZ LE MOUTON**

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La motricité de la région œsophago-gastrique (cardia) a été étudiée chez le Mouton, au cours de la déglutition, de la rumination et de l'éruclation, à l'aide de deux techniques.

Nous avons enregistré l'activité électrique des différentes composantes musculaires de la région œsophago-gastrique. L'allure des électromyogrammes, leurs rapports chronologiques avec

d'autres paramètres physiologiques : contraction réticulaire, péristaltisme œsophagien, accident respiratoire, nous ont conduit à conclure que l'ouverture du cardia au cours de la régurgitation, sa fermeture à la fin de la déglutition procèdent de la *mise en jeu quantitativement différente des mêmes couches musculaires œsophagiennes* : longitudinale externe et circulaire interne.

Grâce à la méthode des sutures nerveuses croisées vago-phréniques de DUSSARDIER (1960), nous avons étudié parallèlement l'activité des motoneurones œsophagiens vagues, et par conséquent la commande nerveuse des derniers centimètres de l'œsophage.

Enfin, nous avons généralisé le domaine d'application de la technique des sutures nerveuses en l'appliquant à l'étude unitaire des afférences vagues chez l'*animal chronique*. Les premiers résultats nous ont permis d'appréhender le comportement des récepteurs œsophagiens de la zone cardiaque, au cours de la déglutition et de l'éruption.

SUMMARY

CONTROL OF MOTRICITY OF THE ESOPHAGO-GASTRIC ZONE (CARDIA) IN SHEEP

Two techniques were used to study the motricity of the esophago-gastric zone (cardia) in sheep during swallowing, rumination and belching.

The electrical activity of the different muscular components of the esophago-gastric zone was recorded. The pattern of electromyograms, the chronological relationships with other physiological parameters : reticular contraction, esophageal peristaltism, respiratory accident showed that opening of the cardia during regurgitation and its closure at the end of swallowing depend upon the action of the same, but quantitatively different, esophageal muscular layers, *i. e.* the external longitudinal layer and the internal circular layer.

Owing to the method of crossed vago-phrenic nervous sutures according to DUSSARDIER (1960), we also studied the activity of the vagal esophageal motoneurons and consequently the nervous control of the last centimeters of the esophagus. Now, we have extended the application of the technique of crossed nervous sutures by using it in the unitary study of vagal afferents in the awake animal. The first results allowed us to study the pattern of discharge of esophageal receptors located in the cardial zone during swallowing and belching.

EFFETS DES STIMULI PHYSICO-CHIMIQUES DE L'ENSILAGE SUR LE DÉVELOPPEMENT FONCTIONNEL DU RUMEN DE VEAU PRÉCOCEMENT SEVRÉ

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Un ensilage de bonne qualité, ce qui est couramment le cas d'un ensilage enrichi en matière sèche par préfanage, constitue un excellent aliment grossier de sevrage pour le tout jeune veau qui le tolère et l'accepte parfaitement dès l'âge de 3 semaines (CANDAU, *C. R. Académie d'Agriculture*, 1968, 1047-1056).