Medicine. — *Reflex influences occurring with cardiospasm.* By A. DE KLEYN.

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The so-called idiopathic cardiospasm or idiopathic achalasia is characterised by the combination of a more or less strong dilatation of the esophagus and the fact that the cardial opening-reflex is absent when food is swallowed. The cause of this idiopathic form is still unknown, in contrast with the symptomatic one, where processes in or round the esophagus cause the same complex of symptoms to arise.

Many clinical observators have objected to the name cardiospasm because the use of this word would imply that the existence of a sphincter cardiae is considered as an established fact. But even if it is admitted that anatomically speaking no real sphincter cardiae is present [1]), there always remains the possibility that circumscript contractions of the circular muscle-fibres bring about the same effect as a real sphincter, which, for that matter, has already been known for a long time for the stomach, under the influence of poisons or excitation of the vagus (MAGNUS [2]), KLEE [3])).

The fact that in most cases of cardiospasm bougies pass very easily is, according to me, certainly no sufficient argument to deny the existence of a sphincter-spasm in any form. The observations of thin bougies being not seldom clasped and that during an operation for cardiospasm the finger of V. EISELSBERG [4]) introduced into the cardia from the stomach was clearly clasped, rather support a contrary opinion!

In all these considerations it is often forgotten that the circumstances in bouginage are not the same as those which exist when food is swallowed. This appears very clearly from an observation made by LOTHEISEN [5]), who at the moment when patients suffering from cardiospasm swallowed barium-pap, saw such a spasm appear in the esophagus that the bougie, which before that time had been introduced without any difficulty, was clasped. When bougies provided with little holes were used, by means of which the pap could easily flow down to the stomach, the spasm disappeared much more quickly than when solid ones were used.

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1) See o.a. BROWN KELLY, Jnl. of Laryng. **221**, 1927 (Semon-lecture).

2) MAGNUS, R. Münch. med. Wochenschr., 1907, nr. 29.

3) KLEE, PH. Plügers Arch., **145**, 557 (1912).

4) V. EISELSBERG, Wiener klin. Wochenschr. **20**, 811 (1907): „In ganz charakteristischer Weise trat ein Kardiospasmus mit derartiger Vehemenz auf, dasz mein Daumen fast umklammert wurde und ich in denselben ein ganz taubes Gefühl bekam".

5) LOTHEISEN, G. Chirurgie der Speiseröhre, Neue Dt. Chir. v. P. BRUNS, **34**, 250 (1926).

The saying of BROWN KELLY [6]): "the spasm is little more than a state of non-relaxation" finally represents an opinion, which comes closely to the opinion of those clinical investigators who, in the so-called cardiospasm, deny every spasm and suppose that this clinical picture is caused by an insufficiency of the longitudinal muscle-fibres of the stomach, thus preventing the normal active opening of the cardia by these fibres (ZAAYER [7]) a.o.). However this may be and whatever theory one may adhere to about the origin of the cardiospasm, it is certain that in patiens who suffer from this affection the normal opening-reflex of the cardia when food is taken does not come into being.

It is not known with certainty which path this reflex takes. Especially about the question in how far the vagus, sympathicus and plexus of AUERBACH are implicated in the reflex and whether perhaps the three of them play a part here, there still exists a great difference of opinion [8]).

As early as 1889 v. OPENCHOWSKY [9]), when experimenting on animals, could observe that by stimulation of the N. ischiadicus and of various organs the cardia could be opened in a reflectory manner [10]) while in clinical literature cases were described where after operation of the gall-bladder, appendix and stomach an existing cardiospasm was cured entirely [11]) or for the greater part, so that also in those cases a reflectory spasm was assumed [12]). The following, certainly reflectory influence in a typical case of cardiospasm, which could be demonstrated again and again with great regularity, has not yet been described, as far as I know and may therefore be mentioned here in brief.

Patient C., a chauffeur of 21 years old, had had difficulties in eating from this 10th year. He clearly felt that the food would not go down normally. Sometimes he vomited it quite undigested and then it did not taste sour. As a child already he took food with difficulty, but no neurotic anomalies could be observed in him. The difficulties, it is true, increased when he was getting nervous. For the rest he had always been in good health nor did the family-anamnesis furnish anything special except the fact that his mother suffered from tuberculosis of the kidneys.

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[6]) BROWN KELLY, A. Brit. med. Jnl., 1912, Oct. 19th.

[7]) ZAAYER, J. H. Acta oto-laryng, 2, 188 (1920).

[8]) See e.g. IMMINK, E. A. M. Thesis Amsterdam, 1928; LOTHEISEN l.c. MAGNUS, R.: Die Bewegungen des Verdauungsrohres, Handb. d. phys. Methodik von R. TIGERSTEDT, 1908; ROELFSEMA, E. J., Thesis Leiden 1937; WORMS, M. G., in TERRACOL, J. Les maladies de l'oesophage, Masson, Paris 1938, p. 159.

[9]) OPENCHOWSKY, TH. V., Dt. med. Wochenschr., 15, 717, 1889.

[10]) „Endlich möchte ich noch erwähnen, dass man bei Thieren, deren sämmtliche Nervenbahnen noch erhalten sind, durch Reizung von Nieren, Blase, Uterus, Ischiadicus eine Öffnung der Cardia erziehen kann."

[11]) See literature in MOERSCH, H. J., Annals of Otology, 43, 1165, 1934.

[12]) The experiments of V. OPENCHOWSKY, however, did not refer to cardiospasm and were made on normal animals, while as regards the clinical observations just mentioned the post, but not at all the propter is established.

Some years ago the patient had noticed that as soon as his food stuck, he only had to press on a certain place medially just above the manubrium sterni to get relief and make the food go down. If he exerted this pressure when taking food, he could complete his meal without further disturbances. For that reason he himself did not consider it necessary to consult a doctor, but his fiancée as can be understood, objected to this way of eating and sent him to our polyclinic. From there he was admitted into the clinic. When a general internal and oto-rhino-laryngological examination was made, no anomalies were found. The number of leucocytes amounted to 5400, the number of erythrocytes to 5.260000, the haemogoblin content was 94 %, while the sedimentation rate amounted to 1 mM in the first and to 3 mM in the second hour. The blood-picture was also completely normal.

The nutritious condition of the patient was very good, contrary to what we mostly observe in sufferers from cardiospasm. This must probably be ascribed to the trick which the patient always applied when eating.

When a röntgenological examination of the esophagus was made, the fluoroscope showed and on the photograph was found the typical picture of a cardiospasm. The swallowed bismuth-pap remained sticking in the strongly widened esophagus at the height of the diaphragm. Sometimes the esophagus was, as it were, quite obstructed, sometimes it ended in a little canal, the so-called mouse-tail (fig. 1). It was only with great intervals that a little pap went into the stomach, in spite of the fact that rather strong peristaltics could be seen. At the oesophagoscopy, which took place a few days later, it appeared that much saliva was found in the strongly widened esophagus. After this had been sucked away, the hyperaemic mucous membrane became visible. The esophagus-tube could be introduced without difficulty and easily passed through the cardia, which was also the case with the several esophagus- and mercury-bougies. At last a röntgenological examination of the patient was made, while he was requested to exert the above-mentioned pressure above the manubrium sterni. The consequence of this was surprising. Fig. 2 represents the picture without, resp. with pressure on any part of the neck, while fig. 3 shows a photo taken after the patient had just exerted a pressure medially above the manubrium sterni. It is seen on the photograph how after this the cardia opened, which the fluoroscope showed even better. This phenomenon could be shown to others repeatedly and on different days, without the reflex ever failing. Only some minutes must have elapsed before a new pressure could be applied effectively.

We have not systematically examined whether this reflectory opening of the cardia of our patient could also be brought about by pressure on other parts of the body. As has already been said, we were not successful when exerting pressure on other parts of the neck-region.

Finally we must answer the question which nerve is excited when

pressure is exerted above the manubrium sterni. Colleague WOERDEMAN also thought that here only the N. recurrens vagi, which in this region liest against the trachea, can be considered. The N. vagus itself lies in this place much too lateral for this.

Summarizing one can therefore say that the cardia of the above-mentioned patient who suffered from cardiospasm opened in a reflectory manner, if there was food in the esophagus as soon as pressure was exerted medially above the manubrium sterni and this very probably as a consequence of an excitation caused by pressure of the N. recurrens vagi. Without this pressure the food did not flow to the stomach or only very slowly. The reflex which played a part here could be brought about regularly if the pressure was not exerted too quickly in succession.

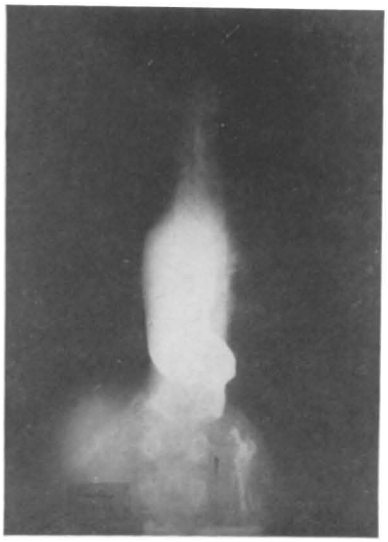

Fig. 1.

Fig. 2.

Fig. 3.