

Cicatricial Stenosis of the Esophagus Due to Hydrochloric Acid Burns

Keisuke MATSUMOTO

Department of Otolaryngology

(Director: Prof. S. Honjo)

Yamaguchi University School of Medicine,

Ube, Japan.

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It is well known that the most common cause of cicatricial stenosis of the esophagus is the swallowing of chemical poisons.¹

In these cases it is of importance to manage cicatricial stenosis which develops as a healing process of corrosive esophagitis due to caustics. This paper presents a case of cicatricial stenosis of the esophagus due to hydrochloric acid and the dilatation technic of stenosing area on the esophagus by using rubber tubes tied silk strings in slow progression of increasing size.

CASE REPORT

Miss K. Y., aged 19 years old, nurse.

The patient had swallowed about 40 cc of hydrochloric acid on March 18, 1966, and had been soon brought to a certain hospital in Hiroshima. Emergency treatment had been instituted, except tube feeding and dilatation of the esophagus in the acute stage. She had been unable to swallow even liquid, because of burn on the oral cavity and throat for three days. About one week later, she had begun to be able to ingest only liquid diets. At 14 days later she had been discharged from the hospital though still masticating food carefully.

On April 13, 1966, she was admitted to our clinic, complaining of some difficulty in swallowing.

On admission, her body temperature was 36.2°C, pulse 78, respiration 18 and blood pressure 98/50. She was not in a state of malnutrition. On local examination, there was no scar formation due to burns on the lips, mouth and throat. The ear and nose were normal.

On April 13, fluoroscopic examination of the esophagus was performed, liquid barium sulfate being used. Barium X-ray revealed a stenosis at the junction of the middle and lower thirds of the esophagus as shown in Fig. 1.

Next day, she was performed on an initial esophagoscopy examination which showed a stenosis due to scar formation and form of granulations blocked foreign body, a lump of meat, located 26 cm. from the upper incisor teeth. A 9 mm. full lumen esophagoscopy was not advanced beyond the stenosing area, because of resistance and pulsation of the aortic arch, in spite of removing its foreign body.

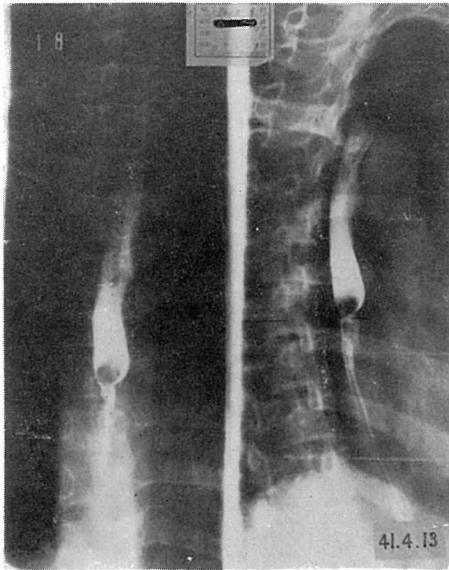


Fig. 1. Barium X-ray shows a stenosis.

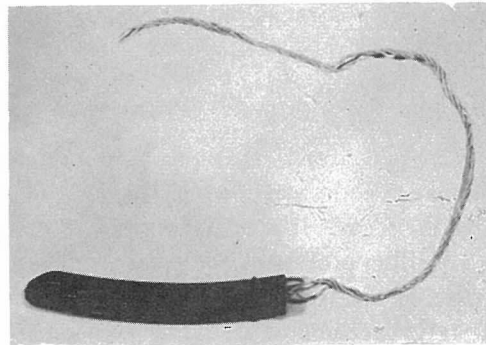


Fig. 2. One of rubber tubes introduced at stenosing area of the esophagus.

Date	Duration	Diameter of Gum Tube Inserted at Stenotic Area of Esophagus
April 14 - 18, '66	5 days :	5 mm
19 - 22	4 :	7
27 - 30	4 :	9
May 10 - 13	4 :	10
19 - 24	6 :	11

Fig. 3. Increasing rubber tubes.

For five days after esophagoscopy examination, she was given Nelaton rubber tube feeding. Since removal of the feeding tube, one rubber tube as shown in Fig. 2 was introduced at stenosing area of the esophagus through esophagoscope, under guidance of the eye for dilatation and the proximal ends of the tube's silk strings were brought out through the nose and fastened to the cheek with an adhesive stripe.

In this series of dilatation in this case, four rubber tubes of slow increasing sizes as shown in Fig. 3 was employed to get a large lumen of the esophagus.

On May 28, 1966, one day prior to hospital discharge, fluoroscopic examination and barium X-ray study revealed considerable dilatation obtained as shown in Fig. 4.

At the 50th hospital day, she was discharged in good condition which gained weight and had no difficulty in eating all kinds of food.



Fig. 4. Barium X-ray shows considerable dilatation of a stenosis.

DISCUSSION

It is generally accepted that the swallowing of corrosive poison is usually accidental in children and suicidal in adults.²

It is quite evident from Uhde's⁽³⁾ report or Cardona's⁽⁴⁾ that lye as poison is responsible from most of the chemical burns of the esophagus, and hydrochloric acid burn is relatively rare.

Kearney⁽⁵⁾ described that cicatricial stenosis of the esophagus may develop at any level, but is more commonly found in the middle third of the esophagus. On the other hand, Sakamoto⁽⁶⁾ reported that the stenosis is most often found in the lower half of the esophagus. In this case, the stenosing area is at the junction of the middle and lower thirds of the esophagus.

Treatment at early stage of the intake of the caustic should be consist in neutralization; vinegar to neutralize caustic alkalis and alkalis; such as sodium bicarbonate, to neutralize caustic acids. Mercuric bichloside requires raw eggs or flour mixed with water or milk.

Gellis and Holt⁽⁷⁾ showed strikingly that good results can be obtained by early

dilatation of the esophageal burns. Cody,⁽⁸⁾ also described that the management of the acute chemical burns of the esophagus is effective, when it includes early and repeated bougienage, and such therapy when carefully carried out would usually prevent subsequent stenosis.

Treatment at late stage is to delate stenosing area by means of peroral bougie, nasal gastric tube and retrograde bougie.

Retrograde bougienage is excellent, but its technic has a defect which needs to do gastrostomy.

Thus, advantages of the pre-described technic employed in this case are as follows ;

1) In order to introduce a short sized rubber tube fixed long strings in only a stenosing area, its tube is able to be left for relatively long duration without injuries of the larynx, pharynx and esophageal orifice, because of continuous intubation.

2) Injuries of the esophageal wall are able to be prevent for doing intubation through esophagoscope under guidance of the eye.

3) The patient is able to swallow her saliva through an indwelling tube during introducing.

4) The patient in this case does not complain uncomfortable sensation near the introduced area.

In addition, Lagergard⁽⁹⁾ designed a new type of tube with saliva groove in its outsided wall which was made small bulk in the pharyngeal area. This tube has similar advantages as our method.

SUMMARY

A case of cicatricial stenosis of the esophagus due to hydrochloric acid burns and a technic for management of cicatricial stenosis of the esophagus, being used increasing sizes of rubber tubes tied silk strings are reported.

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