A modified spreader for pyloromyotomy

Sukumar Maiti · Nabendu Bikash Maiti

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Abstract A modified spreader for pyloromyotomy is innovated for congenital hypertrophic pyloric stenosis. It was found safe, effective and useful.

Keywords Ramstedt's Pyloromyotomy · Spreader

Introduction

Ramstedt's pyloromyotomy is an universally accepted gratifying operation for the congenital hypertrophic pyloric stenosis [1]. To achieve a complete myotomy and to avoid inadvertent injury to the mucosa at the pyloroduodenal junction, precautions are taken during incision on the tumour and by spreading apart the hypertrophied muscle fibers. Instruments that are used should be safe and simple.

Design

Two semi lunar metal (brass) plates of length 15 mm, radius 10mm and thickness 0.5 mm are prepared and their convex

edges are made blunt and rounded by rubbing with a file and sand paper. They are fixed on the apposing surfaces of the blades of a medium size (15 cm). Spencer Wells haemostatic clamp added at the convex border of the shoulder of the clamp 1 cm proximal to the tip of the clamp by soldering. On opening the clamp the metal plates go apart along with the blades and on apposing the blades the plates come together and the combined thickness is 1 mm (Fig. 1).

Technique

Ramstedt's pyloromyotomy is performed through right upper quadrant transverse incision. The tumour is delivered into the wound. Pyloroduodenal junction is identified by

Fig. 1 The spreader. Insets shows the (1) closed blades (2) one of the metal plates showing its measurement.

S. Maiti¹ (✉) · N. B. Maiti²

¹Associate Professor of Surgery
Bankura Sammilani Medical College,
Bankura, West Bengal,
India

²B. Tech (Electronics & Instrumentation)
3,G Gangulipara Lane,
Kolkata - 700 002,
India

Ph: +91 / 09434119017

E-mail: sukumarmaiti@hotmail.com

looking for the white line or prepyloric vein [2]. A longitudinal incision is made on the relatively avascular area on the antero-superior surface of the tumour. The incision starts medial to the prepyloric vein being serosal at the beginning, and then deepened proximally on the tumour through the superficial muscles. The closed blades of the spreader are placed at the middle of the incision and is used to spread apart the edges of the muscle: (1) against the counter pressure applied from behind the tumour and (2) lateral pressure by opening the blades of the spreader. The spreading process is gently completed proximally and distally. The instrument was used successfully in the operation of five cases of congenital hypertrophic pyloric stenosis without any injury to mucous membrane (Fig. 2).

Discussion

In Ramstedt's operation a superficial seromuscular incision is first made on the tumour. In the next step the separation of the hypertrophied muscle fibers is accomplished. Until the mucosa of the pyloric canal is reached with complete separation of the muscles, the pyloric mucosa will bulge into the defect created; and the superior and inferior muscle surfaces sit eccentrically and move independently [3]. Injury to the mucous membrane, commonly at the pyloroduodenal junction is to be prevented. After making a safe incision on the tumour surgeons may follow different techniques for separating the muscles according to their preference. Pressure with blunt instrument such as the handle of a scalpel is twisted to 90° [4, 5, 6]. Use of a special muscle spreader is a great advantage at this stage of operation and a number of different instruments are recommended [3]. Many surgeons use the

convex shoulder of a closed curved haemostatic forcep. Others recommend spreader viz. Benson's spreader, Denis Brown spreader etc., which are not readily available [2, 7]. The above-mentioned spreaders described previously can only be used after the incision on the tumour is made adequately deep, to accommodate the wide blades of the spreaders. The instrument that is devised by us can be used even if the incision on the tumour is made very superficial. Gentle pressure with the closed blades of the instrument with counter forward pressure on the tumour starts separating the gritty muscle mass. Opening the blades will further push apart the muscle mass. The edges of the blades are curved, blunt and rounded; reducing the chance of any injury to the mucosa. The height of the blades of this spreader is maximum in its middle in congruence with the maximum thickness of the hypertrophied muscle mass at the midpoint of the tumour. The operator can look through the gap between blades from above the bulging mucous membrane. It allows maximum spreading out force at the middle and minimum force at the end of the tumour. The spreader is simple, effective and easy to use for completing the pyloromyotomy operation safely for congenital hypertrophic pyloric stenosis.

Summary

For pyloromyotomy, the modified new spreader is a useful alternative to the traditionally used blunt dissectors and other named spreaders, described by previous authors, for separating the muscle mass of the tumour olive of congenital hypertrophic pyloric stenosis.

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Fig. 2 The spreader is being used. The inset shows that the mucous membrane of pyloric canal bulging out through the created muscular gap.