Role of intra lesional steroid injection in management of benign esophageal strictures in pediatric age group

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BES	Benign esophageal strictures
DS	Dysphagia score
EUS	Esophageal ultrasound
FB	Foreign body
FDA	Food and Drug Administration
GI	Gastrointestinal
H2SO4	Sulphuric Acid
KOH	Potassuim Hydroxide(Potash)
NO	Number
PCOS	Post Corrosive Esophageal Strictures
PDI	Periodic dilatation Index
PO	Postoperative
SEPS	Self-expanding esophageal stents.
TOF	Tracheo- esophageal fistula
TTS	Through the score

Introduction

Despite public education and the widespread use of child-resistant packaging, there are an estimated 1.2 million accidental poisonings of children under age six each year in the United States and much more in developing countries, those aren't the only causes for benign esophageal strictures, that involve post-anastomotic strictures, congenital strictures and reflux induced esophageal strictures, but they are indeed the most common causes in developing countries. In many cases, the substance ingested is a household product. In general, ingestion of poisonous substances is more common and has less serious health effects in children than in teenagers and adults. However, an important exception to this trend is caustic and corrosive agents. These substances include drain cleaners, lye, oven and toilet-bowl cleaners, laundry and dishwasher detergents, and small batteries used in watches and cameras. The injuries caused by swallowing these substances are usually severe, whether the material is an alkali or an acid. The esophagus, the muscular tube that conveys food from the mouth to the stomach, is burned by the corrosive material ***(Lovejoy, 1990).***

Most ingestion by children is accidental and the amounts ingested tend to be small. The opposite is the case in adults, in whom ingestion is often deliberate and related to attempted suicide. In such cases the amount ingested may be large and the injury to the esophagus and stomach often severe. Cases of alkali ingestion as a result of child abuse have been reported ***(Arevalo Silva, et al, 2006)***

The incidence of benign esophageal strictures is decreasing, likely due to the *widespread* use of proton pump inhibitors. Although most strictures respond well to dilation, a minority of them, mostly those of non peptic origin, may be difficult to manage. Challenges include the need for repeat dilatations, not being able to reach a minimum diameter, and inability to provide significant symptomatic relief. The mainstay of management of benign esophageal strictures is esophageal dilation. Several techniques for dilation exist. The use of a specific dilation technique is dictated by the character of the stricture. Adjuncts to the management of difficult benign esophageal strictures include steroid injection, use of cautery, and the use of removable stents. As a result of these improvements in endoscopic techniques, the indications for surgical

intervention in difficult esophageal strictures are changing and likely will decrease in the future ***(Pyrtle, et al, 2007).***

Esophageal strictures are caused by bands of submucosal fibrous tissue that encroach upon the lumen and subsequently impede the passage of ingested material from the mouth to the stomach. In children, esophageal strictures are commonly a result of peptic esophagitis, ingestion of caustics, or injury at the site of a surgical anastomosis. Current standards of therapy consist of esophageal dilation and, in refractory cases, esophageal resection at the level of the stricture. Successful treatment of refractory strictures using intralesional steroid injections has been reported in a limited number of patients ***(Berenson, et al, 1994)***.

Some strictures do not respond to standard dilation techniques. These strictures do not dilate to a satisfactory luminal diameter or recur quickly after appropriate sized dilation and may be classified as refractory or recurrent. Successful treatment of these may require additional endoscopic methods to standard dilatation or specialized adjunctive techniques Strictures related to corrosive injury, surgical anastomosis, and peptic injury are more likely to be refractory due to the presence of ongoing inflammation

or associated fibrosis formation at the site of stricture. In efforts to reduce inflammation and fibrosis, steroid injection with dilation has been used for benign esophageal strictures. Several case series have revealed longer dilation free intervals, decreased number of dilations, and increased luminal diameters with steroid injection ***(Kochhar, et al, 1999).***

It has been shown that corticosteroids inhibit an inflammatory response to injury and decreased subsequent collagen formation. Injection of one dose of methylprednisolone before a skin incision decreases the strength of the wound by inhibiting angiogenesis, formation of granulation tissue, and wound contraction in rats ***(Rayner, et al, 2000).***

Aim of the work

This study aims at evaluating the benefit of local steroid injection in addition to upper GI dilatation in the management of benign esophageal strictures in pediatric age group in Ain Shams University Hospitals.

Pathology

Caustic ingestion can cause severe injury to the esophagus and the stomach. The extent of injury is dependent on several factors:

- The composition of the substance
- Volume, concentration, and duration of contact **(*Nicole and Paul, 2010)***.

Most benign esophageal strictures are caused by chronic inflammation leading to ulceration, formation of fibrous tissue, and collagen deposition ***(Spechler, 1999)***.

As compared with peptic strictures, corrosive strictures are difficult to dilate. They require more dilatation sessions and the chance of recurrence is also higher. The factors responsible for recurrence are not clear but could be intense fibrogenesis that occurs during healing and further fibrosis subsequent to the trauma of dilations ***(Broor, et al., 1989)***.

Crystalline drain cleaners in the form of concentrated sodium hydroxide (lye) tend to adhere to the oropharynx or become lodged in the upper esophagus where injury is most severe. A wide variety of caustic