



Review Article

Phytobezoar large bowel obstruction – The prickly pear (A single centre experience and case series report)

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ABSTRACT

Introduction: A bezoar, describes a non-digestible item material. Phytobezoars described in the literature include celery, pumpkins and grape skins. There is a lack of literature describing the *Opuntia ficus-indica*, also known as the prickly pear, as a cause of phytobezoar obstruction.

Aim: To describe a single centre experience with prickly pear bowel obstruction and to perform a case series about prickly pear obstruction.

Results: 23 patients required surgical manual disimpaction under anaesthesia due to large bowel obstruction caused by prickly pears between 2014 and 2017. No correlation was identified between quantity ingested and risk of obstruction. A 'faecoloma' was visible on plain abdominal radiographs in most patients. Administration of laxatives was administered in most patients after the manual disimpaction.

Conclusion: In conclusion, the *Opuntia ficus indica* is a 'multi-purpose' fruit used from the agricultural sector to the pharmaceutical industry. Its use is likely to increase worldwide, including as a source of food/delicacy, especially in countries who promote it as part of their traditional gastronomy. Our experience, has taught us, the prickly pear seeds can lead to large bowel faecal impaction secondary to distal faecoloma formation, when consumed, with no obvious correlation between quantity ingested and risk of obstruction. Utilisation of the osmotic based laxatives is effective but manual disimpaction may be necessary for the phytobezoar induced large bowel obstruction to be relieved.

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1. Introduction

The *Opuntia ficus-indica*, better known as the prickly pear, represents, an underestimated cause of severe faecal impaction. Originating from the Americas, they are now distributed globally and flourish in hot humid environments. Considered as popular culinary treats in some countries, in the Maltese Islands it has been an increasingly common cause of multiple surgical admissions.

In Malta, consumption of prickly pears peaks in the summer months between June and September. The local prevalence of prickly pear faecal obstruction is considered to be increasing due to the high local availability of prickly pears during the summer months. Prickly pears have only been reported in a few case reports as a cause of seed bezoars causing bowel obstruction.

A bezoar, represents a non-digestible item material. They are divided traditionally based on origin, example trichobezoars (undigested hair) and phytobezoar (non-digestible food material) [1]. Prickly pears represent a particular type of phytobezoar. Madjoub et al., showed that the prickly pear seed consists of water (>80%), carbohydrates, proteins and salts [2], coupled with mucilage, a complex polysaccharide, formed by specialized cells located in the cell wall and is able to form molecular networks capable of retaining large amounts of water [3].

The *Opuntia ficus-indica* currently has a global distribution with the plant cultivated in many countries of the world as seen in (Fig. 1) [4]. In fact, just Mexico, is reported to have over 300,000 tonnes on almost 70,000 hectares of specialised terrain dedicated for the production of prickly pear [4]. Cactus pear demand abroad has definitely grown not just in European countries, however, there is no precise official statistical information currently available; but the trend is supported by the various producing countries' increasing exports [4]. This review aims to highlight, our single-centre experience with prickly pear seed bezoar large bowel

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obstruction and highlight the management of faecal impaction caused by prickly pear consumption.

2. Method

Permissions were obtained from the General Surgical Department and the Data Management Unit in XXX Hospital XXX. A retrospective review was performed in the local Surgical Department in XXX Hospital XXX. The inclusion criterion was adults patients who underwent manual rectal disimpaction with general anaesthesia due to faecal impaction secondary to prickly pear ingestion in our emergency theatre.

Electronic Discharge summaries, iSoft Clinical Manager and patient medical records were used for data collection. Microsoft Excel 2016 was used for data input.

Using the local electronic case patient discharge summaries for analysis, the amount of prickly pear ingestion by the patients was recorded. It was noted that patients used various methods to calculate their ingestions. Although the patient might remember the exact amount of prickly pears that was ingested, some patient could only give a descriptive “measure”.

Some patients used descriptive words such as “a bowl” or “a bucket” whilst other patient gave approximations of the amount of prickly pears ingested. All patients included in this study presented with features suggestive of large bowel obstruction. The main complaint consistent in the entire cohort was that of abdominal pain, which ranged from mild discomfort to very severe. Other symptoms present were nausea and in three patients vomited gastric contents.

None of the patients included in our study were haemodynamically unstable or presented with acute perforation with peritonitic signs on presentation at the Accident and Emergency Department.

On abdominal palpation the abdomen was routinely noted to be soft, with no guarding on examination however in some patients mild to moderate abdominal distension was noted. On digital rectal examination, the presence of a hard studded faecal plug was noted in all 23 patients.

In view of the history providing a main diagnosis and examination excluding alternative differentials or evidence of secondary complications all patients had blood investigations and imaging done as part of their work up. No abnormalities were noted in their laboratory investigations.

A plain abdominal radiograph was performed in all 23 patients admitted with prickly pear seed bezoar. 20 patients were reported to have a “faecoloma” (mass of faeces in the rectum) with proximal dilation of the large bowel by the reporting radiologist (Figs. 2–4).

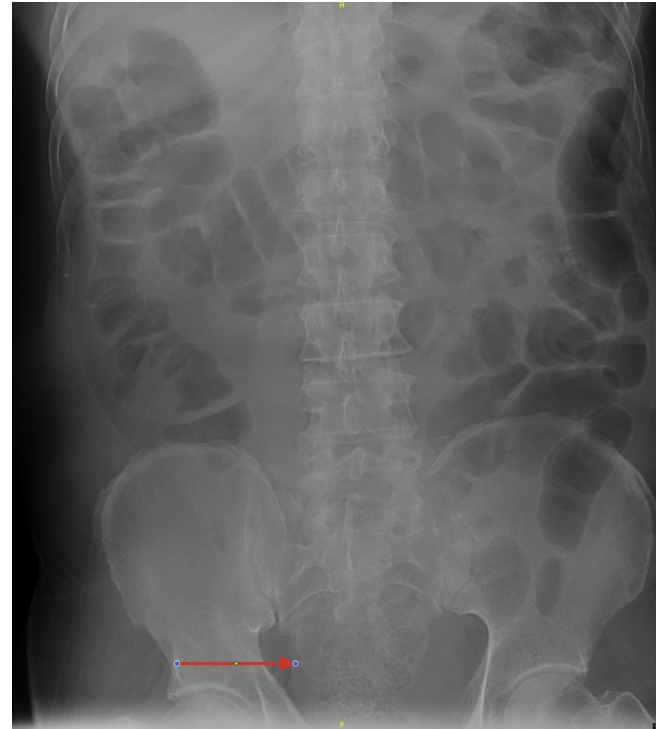


Fig. 2. Abdominal Xray. Red arrow pointing towards faecoloma.



Fig. 1. World Distribution of *Opuntia* spp.

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