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Trigonella Foenum-Graecum (Fenugreek) Causing Phytobezoars: A Frequent Cause of Intestinal Obstruction in Our Practice

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Abstract

Bezoars are concretions or hard masses of foreign matter that are found in the gastrointestinal tract. The composition defines the bezoar classification with the most common type being a Phytobezoar (plant indigestible materials). This original article aims to discuss fenugreek in various edible forms as a phytobezoar causing Ileus and even subacute to acute intestinal obstruction in patients and rarely warranting urgent need for surgical management. Fenugreek (also called Methi in common Hindi language is not only used as vegetables individually and also along with other vegetables as a combination but also used in condiments and spices. If consumed in minimalistic amounts especially in patients without any previous surgeries can be as harmless as any food ingredient, however if used in bulk quantities and if combined along with other foods containing tannins and mucilage and especially in patients with previous surgeries can lead to mechanical small bowel obstruction, at times leading to surgical management if not settled with conservative management.

This retrospective study aims to discuss the management strategies i.e. conservative involved in the successful treatment of patients admitted with acute to subacute intestinal obstruction especially causative agent being phytobezoars and in them subcategory being Diospyrobezoars. We studied 25 patients in the period of Jan 2022 to Jan 2024 (2Yrs) who were admitted with complaints of abdominal pain and etiopathology being phytobezoar induced ileus and intestinal obstruction.

Methods: In this study, between Jan 2022 to Jan 2024, a total of 25 patients who were admitted with complaints of abdominal pain and on CT scan and clinical examination were diagnosed as subacute to acute intestinal obstruction and etiology being phytobezoars were evaluated retrospectively and the following parameters were studied i.e. chief complaints, CT scan findings, history of eating fenugreek or other persimmons, fruits, previous surgical history, length of stay in hospital and back to normal activity in days.

Results: 25 patients were included in this study;15 were females and 10 were males. Median age (10-90 yrs), median length of the stay was (7 days) (3-15 days). Previous abdominal surgery was recorded for 18 patients. Out of 25 patients, 23 were managed conservatively and 2 patients required surgical and endoscopic intervention respectively. No evident complications except Clavien-Diedo Class 1.

Conclusion: Fenugreek which is common vegetable form and also used in the condiments and spices is a cause of phytobezoar in our above set of patients and if consumed in minimalistic amounts especially in patients withoutany previous surgeries can be as harmless as any food ingredients however if used in bulk quantities and with their content of tannins and mucilage and in our non-ruminant stomach and with history of previous surgeries (exploratory laparotomies/gastroplasty/vagotomies) can lead to mechanical small bowel obstruction which can be managed conservatively and sometimes might require surgical intervention.

Keywords

Trigonella foenum -Graecum; Phytobezoars; Diospyrobezoars.

Introduction

Methi in English is known as Fenugreek (in Greek synonym for hay) [1]. According to plant kingdom classification it is division magnoliophyte, class Magnoliopsida, Order Fabales, Family Fabaceae, genus Trignella, Species T. foenum-graecum, complete binomial name being Trigonella foenum-graecum [2]. Cato the Elder lists fenugreek with clover and vetch as crops grown to feed Cattle [3]. Fenugreek is used in many forms like seeds, but stem and leaves contain certain phytochemicals, they are secondary metabolites Such as alkaloids, saponins, tannins, phenols, and many others [4].

Fenugreek as a crop

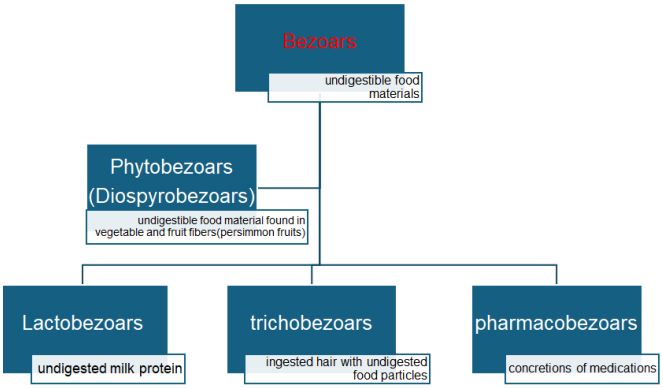
Fenugreek is known to be one of the world's most ancient medicinal herbs, in relation to which the seeds and leaves are used as a treatment in various ailments [5]. The leaves and seeds of Fenugreek have been utilised in various edible preparations in Indian Subcontinent. There have been several preliminary animal and human trials that demonstrated fenugreek exhibiting hypoglycaemic, hypolipidemic, and hypocholesterolemic effects. T. foenum-graecum has also been reported to possess anti-fertility, anticancer, anti-parasitic, and antimicrobial effects [6].

Fenugreek seed mucilage

The study showed that the extraction of fenugreek seeds had 36% w/w of mucoadhesive agent. Fenugreek seeds produce high viscosity mucilage at low concentration Levels [6]. Fenugreek seed mucilage (8% and 9%) has the potential for being substituted as a binder for the more expensive starch in tablet formulation [7]. The REO-loaded biofilms developed through fenugreek seed mucilage extended the shelf life of apples to 30 days, demonstrating their potential for sustainable and active coatings [8].

Bezoar

The term "bezoar" is thought to be derived from the Arabic word "badzehr" or the Persian word "panzehr," both of which mean "counterpoison" or "antidote." Bezoars



Some rare forms of bezoars have been identified like foreign body bezoars (formed from parasitic worms, plastic, paper and polystyrene foam cups). Lithobezoars (stone like materials).

Phytobezoars (Persimmons)

Most commonly celery, pumpkin's skin, grape skin, prunes, raisins skins, have high amount of cellulose, hemicellulose, lignin, tannins (leucoanthrocyanins and catechins) being non-digestible food materials.

Skin of unripe persimmons
High concentration of persimmon tannins

↓

Plus, stomach acid →polymerize →conglomerate →Celloloses, Hemicelluloses, & various Proteins.
For eg Gastric Phytobezoar 11% cellulose, 5% hemicellulose,2% lignin.
Persimmon tannin → cementing agents → undigestible plant fibres together.

High fibre foods such as celery, pumpkins, grape skins, prunes and especially persimmons are risk factors for bezoar formation. Persimmons" God of fruits" in Greek are fruit of plants in genus Diospyros, Immature persimmons contain tannins, adhesive-like substance when they encounter acids and hold other food residues causing bezoar formation.

Objective of the study

This retrospective study involving 25 cases, aims to evaluate the cause of subacute and acute intestinal obstruction as the fenugreek diosphytobezoar and also successful conservative management for most of these cases who presented as an obstruction and avoiding any recurrence of such symptoms again once diagnosis is confirmed.

Materials and Methods

The study was conducted at a private hospital from Jan 2022 to Jan 2024.the total numbers of patients were 25 cases and there were 15 females and 10 were males between the age group of 10–90 years. Diagnosis based on history, clinical and radiological criteria.

No.	male	female	Cause of obstruction	Age (in years)
1	yes	no	Methi (bezoar)+ previous surgery	40
2	yes	no	Methi (bezoar)+ persimmon fruits/veg + diabetes	32
3	no	yes	Methi (bezoar)+ persimmon veg+other comorbities+prev surgery	57
4	no	yes	Methi (bezoar)+ persimmon fruits/veg + diabetes	62
5	no	yes	Methi(bezoar))+ previous surgery	82
6	no	yes	Methi (bezoar)+ previous surgery	34
7	yes	no	Persimmon(bezoar))+ previous surgery	70
8	no	yes	Methi (bezoar)+ persimmon fruits/veg + diabetes	45
9	yes	no	Methi (bezoar)+ persimmon veg+other comorbities	53
10	no	yes	Methi(bezoar))+ previous surgery	62
11	yes	no	Methi(bezoar))+ previous surgery	75
12	no	yes	Methi (bezoar)+ previous surgery	49
13	yes	no	Persimmon(bezoar)	12
14	yes	no	Other causes	56
15	yes	no	Methi (bezoar)+ gastric surgery	73
16	no	yes	Methi (bezoar)+ persimmon fruits/veg + diabetes))+ previous surgery	35
17	no	yes	Persimmon(bezoar))+ previous surgery	70
18	yes	no	Other causes(required surgery)+ previous surgery	47
19	no	yes	Persimmon(bezoar))+ previous surgery	54
20	yes	no	Methi (bezoar)+ previous surgery	68
21	no	yes	Other causes(required surgery	38
22	no	yes	Persimmon(bezoar)	41
23	no	yes	Other causes)+ previous surgery	67
24	no	yes	Palak (spinach) (bezoar))+ previous surgery	52
25	no	yes	Methi (bezoar)+ persimmon fruits/veg + surgery	46

Table 1: Distribution table of the causes of intestinal obstruction in our practice (jan 22 to jan 24).

Results

All patients underwent conservative management in the form of nasogastric decompression, intravenous fluid admission antibiotics and post 48 hours cocktail regimen (as in figure no 5), and successfully were treated of their intestinal obstruction except 2 who required emergency laparotomy. Follow-up was maintained for all the 25 patients for a year and there was no recurrence after avoiding particular food item containing fenugreek in their diet.

No	Recovery in days	Conservative mx (regular cocktail)	Surgical/endoscopic intervention	Clavien -diedo classi Fication

				(complications)if any
1	3	yes	no	no
2	5	yes	no	no
3	7	yes	no	no
4	4	yes	no	no
5	3	yes	no	no
6	4	yes	no	no
7	3	yes	no	no
8	5	yes	no	no
9	7	yes	no	no
10	5	yes	no	no
11	7	yes	no	no
12	5	yes	no	no
13	10	yes	no	no
14	6	yes	no	no
15	5	yes	no	no
16	4	yes	no	no
17	4	yes	no	no
18	4	no	yes	no
19	5	yes	no	no
20	7	yes	no	no
21	3	no	yes	Yes seroma
22	4	yes	no	no
23	5	yes	no	no
24	3	yes	no	no
25	3	yes	no	no

Table 2: Recovery in days, conservative management, surgical treatment, minor complications.

We successfully treated all patients having intestinal obstruction caused by diosphytobezoar ie fenugreek in particular with conservative management except 2 patients who had to undergo exploratory laparotomy, but post one year, all the patients were clinically stable and did not present any obstructive symptoms. They were having a regular diet except methi in any form.

Cases Presentation

Case 1

Patient gave a history of constipation off and on since childhood and one admission prior to this episode 2 years back for similar complaints. On clinical examination the abdomen was distended, tenderness diffuses in nature and dull note present with bowel sounds absent. On per rectal examination rectum was empty. Ctscan examination done which was suggestive of dilated small bowel and dilated large bowel loops with no transition zone. Patient was given our regular cocktail (10 ml syrup cremaffin plus+ 30 ml of positive contrast + 75 ml of water) Patient gradually passed stools over next two days and therafter gradually started on liquid to soft diet which she tolerated very well and discharged on 5th day of admission (Figure 3).

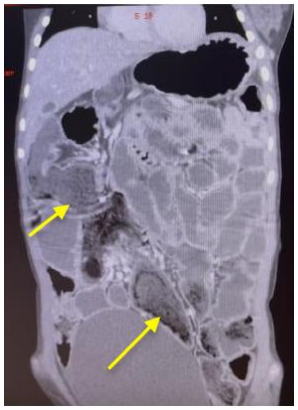


Figure 3: Dilated small and large bowel loops showing bezoars in situ (yellow arrows marking done).

Case 2

45-year-old female previously operated for total abdominal hysterectomy 2 months back came to us with severe abdominal pain and vomiting and inability to pass motions since 2 days.passing flatus. Patient had methi ki bhaji with roti daal and rice 2 days back. h/o persistent acidity off n on since 2-3 years,upper gi scopy recommended. On clinical examination abdomen was distended,vertical infraumbilical scar present and there was diffuse tenderness with sluggish bowel sounds.

On per rectal examination, rectum was empty. On ct scan examination there were dilated small bowel loops with transition zone at the mid –ileum Patient was managed conservatively with intravenous fluids, intravenous antibiotics,nasogastric aspiration and our regular cocktail (100 ml of water + 15 ml cremaffin plus + 60 ml of positive contrast) After which patient responded well and was discharged two days later. After 1 year patient was on regular follow up for her persistent acidity symptoms for she was evaluated with upper GI scopy and esophageal manometry which was suggestive of Hiatus hernia for which patient underwent Robotic Fundoplication with robotic adhesiolysis at the same time (Figure 4).

Figure 4: Dilated small bowel loops with bezoars as marked (yellow arrows).

Case 3

A 50-year-old female presented to emergency with severe constipation and obstipation since two days. The last meal she had was botti (chicken piece with bone) and methi mutter paneer. Patient was evaluated for which she had a past history of similar complaints with history of appendicectomy in the past.

On clinical examination abdomen was soft, but distended, bowel sounds were sluggish, and per rectal examination had fecoliths. On ct scan abdomen there was a bezoar with air fluid levels in the distal ileum.

Patient was started on intra venous fluids, intravenous antibiotics and given our regular cocktail (100 ml of water + 15 ml cremaffin plus + 60 ml of positive contrast) post which patient responded very well and was discharged post 2 days on a soft diet (Figure 5).

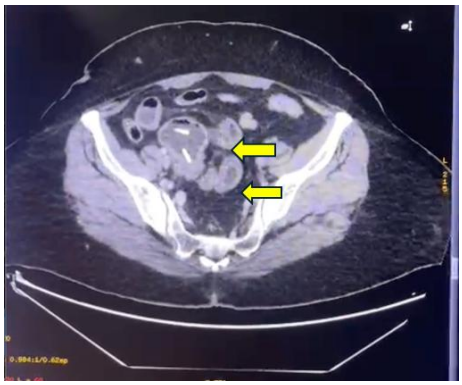


Figure 5: Foreign body bezoars causing intestinal obstruction (yellow arrows).

Case 4

A 45-year-old female who had a history of diabetes mellitus since 10-12 years had methiand other persimmon fruits like jackfruit along with gramflour pancakes and faced constipation for 5 days. Post which she was brought to casualty and was clinically examined, abdomen was distended with diffuse tenderness and sluggish bowel sounds, per rectal examination suggestive of rectum being empty with grade 2 hemorrhoids diagnosed as subacute intestinal obstruction with multiple air fluid levels on xray abdomen and on ct scan was diagnosed to have fecalization of small bowel loops. She was managed with medications and our regular cocktail (100 ml of water + 15 ml cremaffin plus + 60 ml of positive contrast) She passed stools after drinking our regular cocktail and surgery was avoided (Figure 6).

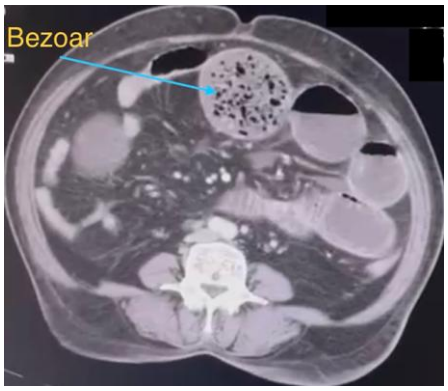


Figure 6: Air fluid levels with bezoar formation in a case of subacute intestinal obstruction.

Case 5

90-year-old female a known case of hypothyroidism, with ischemic heart disease with history of robotic paraumbilical hernia repair surgery came with history of having meethi thepla (pancakes) and Taargola post which she had constipation for a few days and then suddenly she had acute abd pain with severe constipation and required admission. On clinical examination abdomen was distended, bowel sounds were exaggerated and on per rectal examination there was a faeculoma.

Manual evacuation of faeculoma was done and patient was given our regular cocktail along with intravenous fluids and intravenous antibiotics post which patient responded very well and passed good number of stools and discharged in 3 days (Figure 7,8).

Figure 7: Faculoma with bezoars.

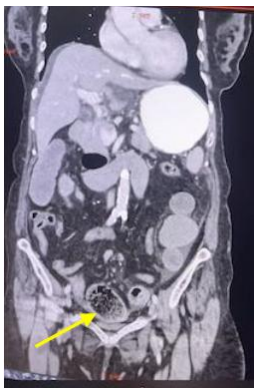


Figure 8: Subacute intestinal obstruction with faecoliths with bezoars (yellow arrows).

Case 6

70-year-old female comes with severe pain in perianal region and painful defecation and bleeding per rectum with inability to pass stools in the last one day. Patient was having methi in her diet repeatedly in the last 3 days think in it as high fibre which would stimulate defecation. Patient got recently diagnosed with hypothyroidism. On clinical examination abdomen was soft, bowel sounds good but on perrectal examination there was a huge faeculoma. Manual evacuation was done under general anaesthesia and patient was discharged the next day.

Case 8

A 70-year-old male who underwent anterior resection for carcinoma rectum around 7 years back presented to us with subacute obstruction on two instances within an interval of 6months but was managed conservatively both episodes after intake of methi along with other varieties of food. In the 3rd episode pt underwent colonoscopy post which he developed acute intestinal obstruction after having methi again this time and on ct scan it was suggestive of adhesive obstruction with disopyrobezoars, hence was taken for an exploratory laparotomy and adhesiolysis was done, also had a stricture in large bowel wherein resection and end to end anastomosis was done and patient recovered well anddischarged on postoperative day 7 and swears to have methi again in his future life.

Case 9

69-year-old male patient underwent robotic right extended hemicolectomy surgery for ascending growth colon and ileo transverse anastomosis and was on a semisolid diet for a month initially, later when the patient was started on soft diet, patient had methi sabji consecutively post which patient suddenly developed pain abdomen with fever.

On clinical examination temp 99-degree Fahrenheit with tenderness and induration present right lumbar region with rest of abdomen being soft, non-tender with bowel sounds good. On ct imaging minimal perianastomotic site collection with small bowel inflammation noted.

The above patient was managed conservatively with our regular cocktail and higher intravenous antibiotics and intravenous fluids; patient gradually recovered very well and was discharged on the 5th day of admission and not requiring any surgical intervention (Figure 9).

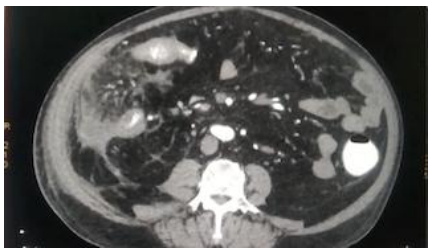


Figure 9: Immediate post-operative subacute intestinal obstruction.

Case 10

A middle-aged woman around in 50 s was admitted at government hospital with abdominal pain and distension of abdomen and severe constipation and was being conservatively managed but no relief. Patient had a history of having methi bhajis and methi sabji consecutively for 3-4 days previously. Patient was clinically examined and was found to have exaggerated bowel sounds with inability to pass motions or flatus even after giving our regular cocktail. Patient was taken for emergency laparotomy where in part of small bowel had to be respected and anastomosis had to be done. Postoperative course was uneventful and patient was discharged on 5th postoperative day excluding methi in her diet (Figure 10,11).

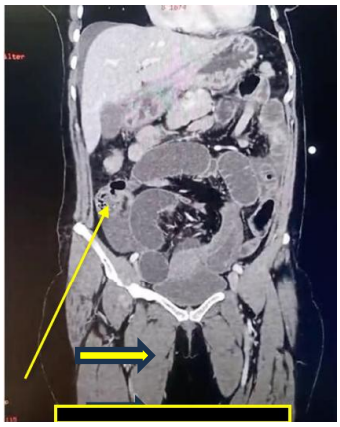


Figure 10: Phytobezoar causing obstruction (yellow arrow).

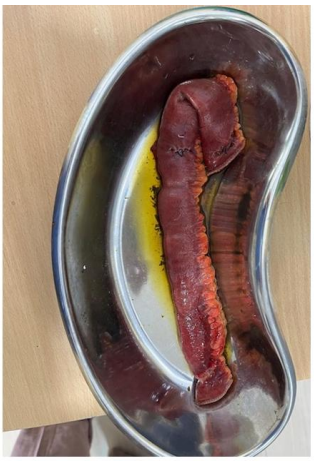


Figure 11: Resected small bowel specimen.

Other cases were representative of the above-mentioned cases.

Discussion

The rhombic yellow to amber colored fenugreek seeds are mixed with yogurt and used as as a conditioner for hair. It is one of the three ingredients of idli and dosa (Tamil).it is also one of the ingredients in the making of Khakra, a type of bread. It is used in injera/traits, a type of bread unique to Ethiopian and Eritrean cuisine. The word for fenugreek in Amharic is Abraham, and the seed is reportedly also openly used in Ethiopia as a natural herbal medicine in the treatment of diabetes [30]. Fenugreek is frequently used in the production of flavouring for artificial syrups. Some cancer protective effects specially in certain organs have been speculated about Fenugreek [29].

Fenugreek plant residues have been used as a green manure and fuel. Also, fenugreek has been utilized as a flavouring agent in many syrups like maple syrup and butterscotch syrup. But it is also used in bulk quantities as a fodder for the cattle specially in mediterranean Basin, and many parts of Indian subcontinent. Indians specially have a habit of consuming extremely large quantities of fenugreek as a vegetable thinking it to be rich in fibre and beneficial for digestion and good roughage.

But our study has proved otherwise, wherein large bulk of fenugreek and sometimes even small quantities with other fibre rich vegetables of persimmon fruits have resulted in drastic effects leading to intestinal obstruction in the form of gastric bezoars.

Methi seeds commonly used for culinary purpose [28]. A high percentage of mucilage was obtained from fenugreek seeds. However, FSM is already reported to possess pharmaceutical applications such as mucoadhesive gelling [28], binding, and disintegration [27]. and antidiabetic agent [28].

Galactomannan, a hydrophilic hetero polysaccharide from FSM commonly contains D-mannopyranose and D-galactopyranose residues with a molar ratio of 1.2:1.0. The key chain of this galactomannan comprises of b-(1,4)-linked D-mannopyranose residues, in which 83.3% is subsCtuted at C-6 with a single residue of a-(1,6)-D-galactopyranose. Galactomannan has a molecular weight of 3.23×105 g/mol and an intrinsic water viscosity of 235 ml/g. Fenugreek gum (seed endosperm) contains 73.6 % galactomannan.

The viscosity of fenugreek gum at 1 % concentration was found to be 286 pa-s (30°, 170/s). Fenugreek gum is an efficient thickening agent and is widely used as a matrixing agent in drug delivery systems (ijpsonline) Because of its high fibre, protein, and gum content, fenugreek has recently been utilized as a food stabilizer and emulsifying agent. Phytobezoars are the most frequently observed type and account for approximately 40% of the total number of reported bezoars.

They are composed of indigestible plant fibers, most commonly from pulpy fruits, orange pits, seeds, roots, or leaves. A 1950 report by Wart-McQuaid lists 45 obstructing foodstuffs.13 Phytobezoars are usually found in the stomach (78%), although up to 17% may occur in the small intestine and may lead to obstruction as in the case of a lentil soup bezoar. Sunflower seed concretions have been described in the colons of children.

Phytobezoar

Phytobezoars are the most common type of bezoar. Offending fruits and vegetables include celery, pumpkin, prunes, raisins, leeks, beets, and persimmon. All these foods contain large amounts of insoluble and indigestible fibers, such as cellulose, hemicellulose, lignin, and fruit tannin. A phytobezoar develops when large quantities are ingested and accumulate [10].

Phytobezoars form from ingestion of excessive leafy vegetables like fenugreek and soyamethi when had in excess. Patients subjected to gastric or intestinal surgery or with clinical conditions that delay gastric emptying, the predisposing factors are overindulgent ingestion of high fibre foods, abnormal chewing and diminished gastric secretion, neuropathy in diabetic patients, hypothyroidism and myotonic dystrophy.

Diospyrobezoar is a subtype of phytobezoar formed after excessive intake of persimmons *(Diospyros kaki)*. Diospyrobezoars are a phytobezoar subtype formed after massive ingestion of persimmons [11]. They are formed by the agglutination of the tannins in the skin of the fruit that forms a glue-like coagulum after contact with dilute acid in the stomach [12,11,13].

Although diospyrobezoar is one of the most common subtypes of phytobezoar, its true incidence remains unknown. In a careful review of the PubMed/Medline database, to the best of our knowledge, less than 90 cases have been well documented in the worldwide literature.

There is a high concentration of tannin (shiboul) which is also a content of Fenugreek seed mucilage that can precipitate when in contact with gastric juice. In the presence of the dilute hydrochloric acid inside the stomach, the tannin undergoes polymerization to form a coagulum that includes cellulose, hemicellulose and protein that is the basis of the bezoar. Subsequently, this cluster undergoes dehydration, being more consistent due to kinetic energy provided by the gastric wall. This contributes to the formation of the diospyrobezoar.

Loss of pyloric function, stenosis of the pylorus as occurs in chronic duodenal ulcers, gastric motility and hypoacidity also play an important role in the formation of diospyrobezoars Systemic diseases such as diabetes mellitus and hypothyroidism have also been reported as predisposing factors for diospyrobezoar formation because they delay gastric emptying Clinical manifestations can vary depending on the location

of the bezoar in the gastrointestinal tract, from no symptoms to acute abdominal syndrome. Abdominal pain (49-100%), epigastric distress (80%), anorexia, vomiting and nausea (35-78%), and small. bowel obstruction (94.73%) are the main clinical symptoms. The preoperative diagnosis of small bowel obstruction due to diospyrobezoar is difficult, given that these patents often have a history of gastric surgery or, at the very least, of a previous laparotomy [26].

In these situations, the initial diagnosis is often adhesive obstruction. A study showed thatwhen the patients had small bowel obstruction, severe nausea and vomiting were present in 100% of cases and physical examination identified signs of acute obstruction in all patients who presented with faecal vomiting and abdominal tenderness.

Sometimes abdominal ultrasonography can suggest a hyper echo if arc-like surface andmarked posterior acoustic shadowing of the bezoars within the intestinal lumen. Abdominal CT scan is the best diagnostic modality for detecting bezoars. Pathognomonic signs to be looked for in a CT scan are an ovoid well-defined intraluminal mass with mottled gas pattern at site of obstruction, other features of small bowel obstruction being a focal transition zone with dilated fluid and air-filled loops of small bowel proximal and collapsed loops of small bowel distal to the obstruction. CT scan has become the first line investigation to rule out the causes of acute abdomen, differentiate between simple obstruction and strangulation [19,11]. Phytobezoars, we believe that patients should be sufficiently informed about the pathogenic mechanisms of bezoar formation. As diospyrobezoar occurs mainly in patients undergoing gastric operations.

A high concentration of tannin (persimmon) exists in a phytobezoar, due to the above reason it is stressed upon the importance of persimmon tannin in the pathogenesis of phytobezoars specially diospyrobezoars. Delayed gastric emptying due to partial gastrectomies, vagotomy and pyloroplasty, peptic ulcer disease, chronic gastritis, Crohn's disease, CA stomach, dehydration, hypothyroidism, diabetes mellitus are predisposing factors for the formation of Phytobezoars [14,15]. These conditions lead to reduced gastric acidity, gastric stasis, loss of pyloric function, and/or pyloric stenosis. Elderly individuals and diabetic patients with neuropathy or myotonic dystrophy have impaired gastric motility [20,16,17,18]. CT scanning is useful to detect both gastric and small intestinal bezoars.

An administration of Coca-Cola® is believed to be the primary choice for phytobezoar treatment because it is safe, inexpensive, and effective. However, persimmon phytobezoars (diospyrobezoars) are often resistant to Coca-Cola dissolution and may require different treatment. Endoscopic fragmentation or surgical removal should be applied in urgent cases, such as those manifesting gastrointestinal bleeding and/or ileus, and in patients with refractory bezoars.

In our practice in cases of subacute and even acute intestinal obstruction we first treat our patients with a medicated cocktail i.e {100 ml of water for hydration,60 ml of oral positive contrast (Diatrizoate Meglumine and Diatrizoate Sodium as it pulls the water in the intestines)besides giving a cover to the intestines to make them more visible in a scan, side effect being loose stools and diarrhoea and 20 ml of syrup cremaffin plus (liquid paraffin, magnesium hydroxide, sodium picosulfate)which has a laxative effect} (Figure 12).

Figure 12: Medicated cocktail (water plus cremaffin plus and oral positive contrast).

Conclusion

Although fenugreek or methi is a versatile plant wherein every part of its system is in verygood use be it seeds, its leaves whether in nondried or dried state but in excess amounts anyedible food can be lethal to our human system, hence its recommended that patients should be well educated about their conditon whether medical or surgical in accordance with the diet they should follow in the immediate and the future post-operative course so that they should not only benefit from this all-rounder condiment but also prevent themselves from falling prey to the harmful effects of bezoars in their own form and let it used in excess to fodder the cattle and restrict ourselves to only flavour and aroma of the so called Greek hay asits rightly said" Make hay while the sun shines.

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