

Exploring the Effect of Liver flush in the Management of Cholelithiasis: A Case Series

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ABSTRACT:

Cholelithiasis is a condition which affects 10- 15 % of the world population and more than 80 % is asymptomatic. The prevalence is due to multiple factors such as age, gender, lifestyle etc. Cholecystectomy is the widely practiced treatment option for gallstones. However, the conservative management of Cholelithiasis is not well established. The objective of the current case series is to explore the effect of Liver flush technique as a conservative treatment in the management for Cholelithiasis. We present the case series of 4 Cholelithiasis patients with associated co morbidities. Liver flush technique, as per previous studies (i.e. Apple diet for 10 days followed by intake of 180 ml of Olive oil with concentrated lemon extract and low caloric high fiber diet) was administered as a treatment modality for the conservative management for Gall stones. In our case series, we present cases, wherein there was complete disappearance or reduction in the size of gall stones, after following life style changes and diet pattern mentioned in the Liver flush technique. Considerable improvement in the associated co-morbidities was also observed. Cholelithiasis could possibly lead to potential health derangement, significantly impacting the functioning of Hepato biliary system. The case series presented here is to be considered as preliminary evidence on the efficacy of Liver flush in the conservative management of Cholelithiasis. Further research is required to substantiate our findings and promote conservative management, rather than opting for surgical removal of gall bladder.

KEYWORDS: Apple diet, Cholelithiasis, Liver flush, Naturopathy.

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INTRODUCTION:

Cholelithiasis or Gall stones are a major health issue worldwide. More than 10-15 % of adult population are affected and above 80% are asymptomatic, with prevalence in female three times higher than male. There are various predisposing factors that lead to Gall stones such as obesity, pregnancy, fatty and oily mixed diet, Crohn's disease, terminal ileal resection, gastric surgery, hereditary spherocytosis, sickle cell disease, and thalassemia which are all associated with an increased risk of developing Cholelithiasis.^[1-2]

There are three types of gall stones- pigment gallstones, cholesterol gall stones and mixed. The most common in adults are mixed gall stones, while pigment gallstones are more common in children. When bilirubin precipitates in the gall bladder it forms pigment stones. Cholesterol gallstones contains, cholesterol, bilirubin compounds and plus calcium salts. Mixed gallstones are made up of cholesterol and pigment gallstones.

Cholelithiasis is often asymptomatic, however, in rare symptomatic gallstones, the most common clinical manifestation are recurrent right upper quadrant pain that occur mostly during night time. Pain might be associated with nausea and vomiting, with pain varying from less to severe pain. Fever could also occur in this condition due to infection. Other common symptoms include jaundice which may present due to obstruction.^[3]

Liver flush is said to be the conservative treatment in management of Gall stones. Here liver flush involves consumption of Apple fruit diet for 10 days followed by intake of a combination of olive oil and lemon juice with low caloric high fibre diet. Recent studies showed that liver flush helps in breaking up gall bladder stones and stimulates the gall bladder to release them in

stools. Apple helps to tone the liver by reducing the oxidative stress and helps to improve the quality of bile.^[4] The large dose of olive oil used in liver flushing preparations have a laxative effect, and patients who have been administered liver flush have reported to find greenish colour stools with some lump in their stool after the procedure.

CASE HISTORY:

Case report 1:

A 64 year old male came to yoga and naturopathy department with complaints of burning sensation in the abdomen for the past one year and gets aggravated on eating spicy foods. He had a history of urinary incontinence associated with subsequent urinary tract infection over the past 8 years. Pain and tenderness in the epigastric and upper right quadrant regions were observed on palpation. Murphy's sign was absent. There is no history of previous trauma and had vitals were stable. He was diagnosed with Fatty liver –grade 1, Simple hepatic cyst, Cholelithiasis, Hypercholesterolemia. He has no history of alcoholic addiction and his dietary habits include oilier and Non-vegetarian foods. He approached yoga and Naturopathy department for complementary therapy. After Liver flush treatment, symptoms were gradually reduced. After subsequent follow up of one month, there is a reduction in cholesterol level and ultrasonogram findings (Table-1) showed healthy liver and gall bladder devoid of any calculi.

Case report 2:

A female patient aged 27 came with complaints of Right hypochondriac pain since 6 months associated with occasional nausea and vomiting. She had irregular menstruation for the past 2 years. Also she had the complaint of sudden rise in weight

especially after delivery. She has taken diet regimen specifically high protein and low fat diet. After taking this diet regime for 3 months she lost 8 kg. After completing the diet regime she experienced right hypochondriac pain. Ultrasonogram revealed multiple calculi in Gall bladder and Bulky uterus. She undergone liver flush procedure and her vitals are stable. After subsequent followup, the symptoms never reoccurred. In the post-ultrasonography (Table-1), there is a reduction in the size of calculi of gall bladder was noted.

Case report 3:

A 43 year old female patient came to yoga and naturopathy op department with the below mentioned complaints. She is a known case of Cholelithiasis, Largest stone size 14 mm (Table-1). She was asymptomatic and her vitals are normal. While taking case history it is found that fond of eating Sweets and oily food. She usually consumes ghee sweets half kg a week. When taking regular health checkup it is ruled out to be Gall stones. Doctors advised her to opt for surgery but she was not interested in surgical procedure, so she decided to go for complementary medicine. She came to yoga and naturopathy department for treatment. After Liver flush procedure, post ultrasonogram revealed reduction in size of gall stone from 14 mm to 10 mm (Table-1).

Case report 4:

A 51-years old male patient came to yoga and naturopathy op department with moderate to severe pain over the right upper quadrant abdomen, which is intermittent in nature diagnosed with Cholelithiasis in 2017. Abdominal CT scan (Table-1) indicates cholelithiasis, also Patient had complaints of occasionally occurring moderate to severe

pain over the right upper quadrant abdomen, which is intermittent in nature. Patient underwent conventional management in a private hospital for 6 months. After that, he visited Govt Yoga and naturopathy hospital OPD. On examination, pain on upper right quadrant of abdomen is present during palpation with negative Murphy's sign. He was given monofruit diet for 10 days followed by liver flush procedure and he was advised to follow the prescribed diet for a month. After follow up, abdominal CT (Table-1) shows that the multiple calculi have been reduced to the form of sludge and all the symptoms of cholelithiasis has been disappeared.

METHODOLOGY/ TREATMENT GIVEN:

- Ultrasonogram (Table-1) was taken to identify the size of gall stones at baseline.
- Apple fruit diet was given to the patients every 2-3 hours, for 10 days. On 11th day, from noon till 5pm, patient is allowed only to drink water.
- At evening 5 pm two table spoon of Magnesium sulphate [Epsom salt] added to 200 ml of water is consumed.
- After two hours equal composition of olive oil and lemon juice [30 ml each] are mixed together and given as 6 doses with each having 15 minutes interval. [Total 180ml+180ml= 360ml]
- After that patient is advised to fast for the whole night and in the early morning neutral water enema was given followed by fibre rich diet for rest of the day.
- Ultrasonography (Table-1) was repeated to find out the changes in the size of gall stones
- Follow up is done after four weeks

Table-1: Assessment of result:

Cases	Investigation	Pre-assessment	Post-assessment
Case 1	USG-abdomen	<ul style="list-style-type: none"> Diffuse increase in echotexture in liver and simple cyst with a size of 1.3 cm in segment 2 left lobe of liver and also multiple calculi in gall bladder largest measuring 8 mm. 	<ul style="list-style-type: none"> Healthy liver with normal size and echotexture, healthy Gall bladder devoid of any calculi.
	Total cholesterol (mg/dl)	207	149
	Total bilirubin (mg/dl)	2.44	2.17
	Indirect billirubin (mg/dl)	1.87	1.51
Case 2	USG –abdomen	<ul style="list-style-type: none"> Multiple calculi in the lumen of Gall bladder with a size of 8-11mm. CBD measures 11mm. 	<ul style="list-style-type: none"> There is a considerable reduction in the size of the stone. Largest calculi size reduced from 11 mm to 7 mm & 6.3 mm.
Case 3	USG-abdomen	<ul style="list-style-type: none"> Multiple calculi in gall bladder. Largest stone size 14 mm. 	<ul style="list-style-type: none"> Gall bladder wall thickening was noted and reduction in the size of stone from 14 mm to 10 mm.
Case 4	CT scan- abdomen	<ul style="list-style-type: none"> The gall bladder is distended shows 25-30 calculi, largest measuring 4×4 mm in size. 	<ul style="list-style-type: none"> Multiple calculi have been reduced to the form of sludge.

RESULT AND DISCUSSION:

The case series result showed that there is a change in the size of the stone after the liver flush procedure in all the patients showed upper right quadrant pain and negative Murphy's sign observed. Clinical studies showed that most of the gall stones found in the patient is predominantly crystalline cholesterol monohydrate. Cholesterol is virtually insoluble in water and rarely there are some pigmented stones and calcium

stones. Imbalance in the cholesterol composition in bile cause precipitation and hardening of cholesterol results in gall stones. Cholelithiasis is primarily a disease of liver rather gall bladder because the lithogenicity of bile is from the liver and not gall bladder.^[5] In this condition either increased cholesterol biosynthesis or defective conversion of cholesterol into bile acids due to diminished activity of cholesterol 7 α hydroxylase (limiting enzyme for bile acid biosynthesis

and cholesterol elimination) leads to excessive cholesterol secretion.^[6]

High intake of fatty foods and oxidative stress are said to be the common cause for these condition.^[7] Donnelly *et al.* used a multiple-stable-isotope method, demonstrated only 15% via diet, 26 % from DNL and more than 60% of liver triglyceride content derived from FFA influx from adipose tissue.^[8] Apple contains poly phenols has been shown to have hepatoprotective effects on liver oxidative stress. The total antioxidant activity of apples with the peel was approximately 83 µmol vitamin C equivalents, Consuming 100 g of apples equivalent to 1500mg of Vitamin C, a powerful antioxidant which helps to reduce the synthesis of cholesterol.^[9]

Aprikian et al., found that combined apple pectin and apple phenolic fractions lowered plasma and liver cholesterol, triglycerides, and cholesterol absorption. It proves the beneficial interaction between fruit fiber and polyphenolic components that supports the benefits of eating whole fruit rather than taking supplements.^[10]

Studies showed that plasma cholecystokinin level increased in response to the consumption of magnesium sulphate. CCK is responsible for the contraction of Gallbladder and effective flushing of bile.^[11]

Sies et al. study showed the effect of liver and gall bladder flush on patients [intake of apple and vegetable juice, followed by the consumption of olive oil and lemon juice over several hours], resulted in the passage of green, semi-solid stools. It may be due to the action of gastric lipases on the triacylglycerols that make up olive oil, yielding long chain carboxylic acids, primarily oleic acid. It was then commenced by the saponification into large insoluble micelles of potassium carboxylates from lemon juice known as soap stones.^[12]

It helps to flush out the stored sludge in the gall bladder and followed by high fibre diet helps to increase the production of cholecystokinin which increases the gallbladder motility and effective emptying of gallbladder.^[12]

In another study, it was observed that the ingestion of olive oil and lemon juice caused an increase in the serum levels of amino acids glycine and phosphatidylcholine compared to before flushing procedure. This significant amount of increased glycine and phosphatidylcholine are beneficial in flushing out small-sized gall bladder cholesterol stones.^[13]

CONCLUSION:

The asymptomatic nature of Cholelithiasis need not necessarily be the reason to rule it out as a minor condition. Cholelithiasis could possibly lead to potential health derangement, significantly impacting the functioning of Hepato biliary system. The case series presented here is to be considered as preliminary evidence on the efficacy of Liver flush in the conservative management of Cholelithiasis. Further research is required to substantiate our findings and promote conservative management, rather than opting for surgical removal of gall bladder.

Limitations of study:

As this is a case series, so that generalizing the study outcome would not be conclusive. Thus, further research study with larger sample size is required to get deeper insight about the relationship between liver flush and cholelithiasis.

Declaration of patient consent:

An informed written consent was obtained from all three patient for participating in the study and reporting this case in research journal.

Conflict of interest: The author declares that there is no conflict of interest.

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