



[Science Archives \(ISSN:2582-6697\)](http://www.sciencearchives.org)

Journal homepage: www.sciencearchives.org



<https://doi.org/10.47587/SA.2023.4203>

Review Article



Gallstones causes and treatment: a review

Ban Mohan Mohsen  and D. Fayhaa Abboud Mahdi Al-Nadawi

College Of Basic Education, Department of Science, Mustansiriyah University, Baghdad, Iraq

Received: Apr 04, 2023/ Revised: Apr 27, 2023/ Accepted: Apr 29, 2023

(✉) Corresponding Author: banban.edbs@uomustansiriyah.edu.iq

Abstract

Gallstones are small stones found in the gallbladder. The size ranges from as small as a sand grain to as large as a golf ball. About 80 % of gallstones are made of cholesterol, which improves when find more cholesterol in the gallbladder. The other causes have elevated levels of bilirubin and concentration of bile in the gallbladder. About 1 person from 10 people have gallstones, but the most of them are not aware because there are not cause any symptoms. This could be very painful and may be a must surgery or treatment to get rid of the gallbladder. Stones are formed in a number of human organs, such as stones in the kidneys, stones in the bladder, prostate, and salivary glands, as well as the gallbladder. Gallstones are aggregations of rough, solid bodies that may be very small, the size of a grain of corn, and may be as large as the gallbladder itself, or of different sizes between these two sizes.

Keywords: Gallstones, Gallbladder, Cholesterol, Bile Concentration, Bladder, Stones

Introduction

The Gallbladder organ is a small pear-shaped under the liver in the upper of the right abdomen part that plays an important role in digesting food fats by bile storing, and bringing it to the small intestine when food is accessed. In the liver where the bile is produced and it consists of, salt cholesterol, and bilirubin. The bile juice present inside the gallbladder sac is a dissolved liquid in which a number of solid bodies are dissolved, just like sugar or salt dissolved in water. These solid bodies are cholesterol, bile salts, and bile pigments. If the concentration or quantity of these solid bodies increases, they will settle and aggregate, forming stones exactly when, as you can see, grains of sugar have been deposited at the bottom of the cup of tea when the quantity is large. In the natural state, these bodies do not precipitate or form stones, but if the amount of these bodies increases, this leads to the formation of gallstones (NIDDK, 2022). Gallstones: Most gallstones are mostly cholesterol. The color is usually green or yellow. There are different types of gallstones, which are mostly bilirubin and are smaller and darker (NIDDK, 2022).

The reasons that lead to an increase in the concentration of these substances and thus the emergence of gallstones?

- 1- Decreased fluidity of the bile juice and an increase in its density due to a lack of drinking fluids or an increase in its retention in the gallbladder due to a slow or lack of regular and rapid emptying of the gallbladder.
- 2- Infection of the ducts that transport bile from the liver to the intestines with some bacteria, such as Escherichia coli, or with some parasites.
- 3- Diseases in which the breakdown of red blood cells increases lead to an increase in the incidence of gallstones as a result of the increase in bile pigments, one of the substances that result from the breakdown of red cells (NIDDK, 2022; NIH, 2022).

Contributing factors for gallstones

- 1- Gallstones usually affect women more than men.

- 2- The incidence of gallstones increases after the age of forty.
- 3- The appearance of gallstones increases in overweight people compared to people of normal weight.
- 4- Contraceptive pills that increase the concentration of estrogen increase the chances of gallstones.
- 5- Pregnant woman.
- 6- The presence of cirrhosis
- 7- Having irritable bowel disease (irritable bowel syndrome) there is a history of a family of gallstones.
- 8- He underwent surgery to get rid of obesity.
- 9- They are treated with the antibiotic ceftriaxone
- 10- Using birth control pills
- 11- Women who take high-dose estrogen.
- 12- The outcome of type 2 diabetes is a risk factor
- 13- Lack of sports exercises also increases gallstone risk (Rohini, 2022; Jenny, 2022; Rachel, 2022).

Gallstones are among the common health problems. For example, in the United States of America, about one million cases are diagnosed annually, and about half of this number annually undergo surgery to remove gallstones (NIDDK, 2022).

We can divide the clinical picture of gallstones into four sections (NIDDK, 2022; NIH, 2022).

First: the absence of symptoms and signs

Many people may have gallstones without causing them any health problems and their presence is only discovered during an ultrasound examination or x-ray of the abdomen for other reasons such as other abdominal diseases.

Second: Mild symptoms and signs

Mild pain from time to time in the upper right abdomen, with symptoms such as discomfort with fatty foods, increased flatulence immediately after eating, a sense of early satiety, and mild nausea.

Third: the case of acute Cholecystitis

In this case, gallstones lead to acute inflammation of the gallbladder, which will be explained in detail in the topic of acute Cholecystitis, where there is severe pain, nausea, and severe vomiting.

Fourth: the case of chronic Cholecystitis

It is somewhat similar to the symptoms and signs in the second case, but the symptoms and signs are more prominent and there are signs of chronic inflammation in the gallbladder.

Ultrasound is the appropriate device for diagnosing gallstones, because some gallstones may not appear on regular X-rays. (Kerrey, 2022).

Complications of gallstones Acute and chronic Cholecystitis.

The movement of the stone into the bile duct from the liver to the intestine cause blockage of this duct and thus the emergence of obstructive jaundice or acute or chronic pancreatitis. Gallstones may be a cause of pus gathering in the gallbladder or its wall bursting (Health, 2022; Health, 2021).

Acute Cholecystitis: By it, we mean the occurrence of acute inflammation of the gallbladder and its walls, usually due to the presence of a stone that led to blockage of the duct leading from the gallbladder to the general bile tube. Others, such as inflammation of the gallbladder with salmonella bacteria (NIH, 2022).

Auxiliary factors for acute gallstone Cholecystitis.

Diabetes, pregnancy, weight gain, rapid weight loss, exposure to surgeries, and acute bacterial infection in the body.

Heart disease, sickle cell anemia, and AIDS).

The prevalence of acute gallstone Cholecystitis.

About a third of patients with gallstones suffer from bouts of acute Cholecystitis. In America, for example, 500,000 patients undergo gallbladder surgery (NIH, 2022).

Symptoms and signs

Severe sharp pain in the right area above the abdomen that may reach the right shoulder joint. (What differentiates the pain of acute Cholecystitis from biliary colic is the continuation of the pain for more than 6 hours in the case of acute Cholecystitis and the severity of nausea, vomiting, and fatigue). A slight increase in temperature may present nausea and vomiting (NIH, 2022).

Clinical examination of the patient: pain appears when pressing in the right region in the upper abdomen, an increase in temperature, and an increase in heartbeat. Yellowness of the eyes and skin may be present in 15% of patients.

The presence of Murphy's sign, which means when the doctor puts his hand in the upper right region of the abdomen and then asks the patient to take a deep inhale because the patient cannot complete this inhalation due to pain, and this matter must also not be present in the upper left region of the abdomen.

The aforementioned symptoms and signs may not be present in the elderly or diabetic patients with acute inflammation of

the gallbladder, so perhaps only a slight pain in the right area in the upper abdomen, so there is special caution and care that must be taken by the doctor when the patient is old (NIDDK, 2022; NIH, 2022).

Not every acute pain in the right region in the upper abdomen means that there is an acute inflammation of the gallbladder. The difficulty that the internist usually faces is whether this acute pain in the right region in the upper abdomen is caused by acute Cholecystitis, or is for many other reasons that cause such pain, which makes the need for a number of laboratory and clinical examinations very important. But what other causes or diseases cause such pain?

Among these causes and diseases are the following:

Stomach ulcer, biliary colic, acute viral hepatitis, acute pancreatitis, right kidney stone, and acute renal colic.

Less common causes such as (amebic hepatitis, heart attack, right colon stroke, and sickle cell anemia) (NIDDK, 2022) (SRCAAC, 2022; FGWE, 2022).



Fig. 1 Shows a gallbladder full of pebbles (1)



Fig. 2 shows obstruction of the bile duct with a stone (12)

Chronic Cholecystitis

Chronic Cholecystitis results from recurring mild bouts of acute Cholecystitis that led to an increase in the thickness of the gallbladder wall, which leads to a shrinkage of the gallbladder and its inability to perform its function, which is the regular contraction and emptying of bile as a response to the entry of food into the small intestine, and this leads to the accumulation of this juice and the digestive system not benefiting from it. Some of them are in the digestion and absorption of fatty substances, so we find the patient with chronic Cholecystitis complaining of a number of symptoms

when he eats a fatty meal such as butter, fats, Had rami and Omani sweets, and grease. These symptoms are symptoms of chronic Cholecystitis.

Results and Discussion

Symptoms of chronic Cholecystitis

The disease usually appears in women more than men, and its appearance increases after the age of forty. Gallstones and the patient's exposure to bouts of acute Cholecystitis are among the factors that help the emergence of chronic Cholecystitis, whose symptoms include the following:

Chronic and recurring mild pain in the right region at the top of the abdomen, difficulty and delay in digestion, increased abdominal gases, discomfort after finishing eating food, discomfort when eating fatty foods, feeling nauseous after eating, and gallstones in diabetics (NIDDK, 2022; NIH, 2022).

Diagnosis

If symptoms suggest the gallstone's presence, the doctor's tests like blood tests to know the liver function and make ultrasound scans to check inside the stones of the gallbladder.

The joint test requires no equipment. It depends on the patient's breath and the pressing of the doctor on the abdomen beside the gallbladder. It is a Cholecystitis indication.

Gallstones usually don't appear well on an X-ray, but we use cholangiography dye in the bile duct before the X-ray is done. To check for any abnormalities.

Other gallstones imaging tests are

- MRI (magnetic resonance imaging) scan to show up of stones in the bile ducts.
- CT scan and X-ray may be used to show up of pancreatitis acute.

If gallbladder acute disease is suspected, hospitalization may be useful. (Rachel, 2022, Kerrey, 2022, NIDDK, 2022).

The treatment of gallstones

Treatment of gallstones depends on how they affect daily life and the symptoms. If they are found within routine tests, but gallstones not causing symptoms, doctors may recommend leaving them instead of treatment immediately.

Surgery is the most common treatment for gallstones remove laparoscopic cholecystectomy. During this procedure, the surgeon passes special tools, a camera, and a light through several small incisions in the abdomen inside.

The other option is endoscopic retrograde cholangiopancreatography (ERCP). This access aims to bile stones remover without removing the gallbladder. In

some patients, this is the only treatment. A hot wire goes through a device called an endoscope to widen the bile duct opening to remove the bile stones (GPTME, 2022).

Gallstones non-surgical treatments

The other operation, a medication called ursodeoxycholic acid may help break up the gallstones. A low cholesterol diet can be recommended with the treatment. Ultrasound is used to destroy gallstones into smaller pieces. But can be a risk of some gallstone residual and complications from the small pieces they leave behind. (GPTME, 2022; DIGAC, 2021).

Gallstone causes and treatment

Home remedies for gallstones

The top home remedies for gallstones

1. Vinegar of Apple cider

The apple acidic nature cider vinegar stops the producing cholesterol liver, which is responsible for the formation of the most common type of gallstones. Also plays a major role in gallstones dissolving and relieving the pain.

Method: Make a cup of apple juice. He drinks it when he finds stone pain. This will greatly reduce the pain for 15 min.

You can add two tablespoons of apple cider vinegar and one lemon juice tablespoon to a warm water glass and drink it on an empty stomach in the morning. This can be done often for weeks to dissolve gallstones dissolve and remove pain.

2. Lemonade

For keeping gallstone pain under control and stopping the making cholesterol liver, which helps speed recovery. The lemon juice pectin to get rid of gallbladder pain.

lemon juice has the vitamin C that makes cholesterol more water soluble, which supplies faster stones elimination.

Method: Drinking fresh juice every day on a stomach empty. Follow drinking with a water glass. This treatment continues for a week.

You can drink 4 tablespoons of lemon juice mixed with a warm water glass every day on an empty stomach. This treatment continues for many weeks until eliminated of gallstones.

3. Peppermint

Peppermint aids digestion by stimulating the pass other digestive juices and bile. Additionally, it contains a compound called terpene which is an effective solution for gallstones. It also helps to relieve and relax acute gallbladder cramps.

Method: A warm water cup, add a dried mint leaves teaspoon, remove it from the heat, put the lid on for five minutes, strain and add a honey spoonful.

Drinking it in tow times daily for 4 to 6 weeks. For maximum results, you drink it between meals.

4. Vegetable juice

If suffering from gallstones, it is necessary to prevent on fried and fatty foods for one week or two weeks and follow a diet based on vegetables and fruit juice. The vegetable juice is a mixture made of beets, carrots, and cucumbers. It is a gallstone's good remedy.

Beetroot helps to cleanse the liver and gallstones strengthens. Cucumber content because it contains a high percentage of water helps detoxify the gallstones and liver. Carrot is rich in vitamin C and other nutrients that are very well of the immune system.

Method: The juice extracted from one beetroot, four medium-sized carrots, and one cucumber, mix them and drink juice two times a day. Follow this for 2 weeks and you will notice a significant development in your condition.

5. Psyllium

Psyllium is the best source of soluble fiber, and therefore it is considered a success for gallstones. The psyllium fiber reduces the cholesterol in bile and helps reduce gallstones from forming. In addition, it promotes neutral bowel movements, which reduces the gallstone's risk of becoming obsolete. Additionally, psyllium reduces constipation, a condition associated with the increased formation of gallstones.

Method: Added one psyllium powder spoon to a water glass, mix very well and drink it twice a day, repeat daily until disappearing off the gallstones. When using psyllium, be sure to drink plenty of water as it absorbs water.

6. Dandelion

Dandelion is a very beneficial herb for treating gallstones. It consists of a compound known as taraxacin that aids in the secretion of the bile liver. Also helps remove toxins and fats calculate in the liver. When the liver begins to function properly, it helps the functioning of the gallbladder.

Method: Put one teaspoon of dried dandelion root in the cup. Put hot water into a cup, and cover for five minutes. Add honey. Drink it 2 or 3 times daily for 1 or 2 weeks.

Also, you can eat dandelion greens by adding them to salads or inhaling the steam.

Note: Diabetics should avoid using dandelion.

7. Milk Thistle

Milk thistle is best the remedy for gallstones. This herb consists of a bitter substance called silymarin which stimulates bile production. Increasing bile productions reduce this concentration and help expel gallstones.

Method: Grind a seeds tablespoon in a grinder coffee or crush them in a mortar and pestle. Put the crushed seeds into three cups of boiling water. Turn it off and then leave it for twenty minutes. Add the honey t and drink it 2 to 3 times daily for 1 week. You can take the herb in the form of medicine. For the proper dosages. Usually, take 420 mg per day in three divided doses.

8. Castor Oil

Castor oil has many therapeutic and medicinal properties that can help reduce and lower gallstone numbers. It has anti-inflammatory properties that help reduce inflammation and relieve pain. Castor oil has a very good effect on the lymphatic systems and immune.

Method: Put the castor oil in a frying pan until it becomes warm. A piece of soaked cheesecloth in the hot oil, then extract the excess from the oil and place the wet cheesecloth on the right side of the stomach where locate the gallbladder. Cover the cheesecloth with a plastic sheet. Next, place the hot water bag on a sheet of plastic wrap for thirty to sixty minutes. Follow this remedy at least 3 times a week until you recover the access completely.

9. Pear

Pears can reduce the other symptoms and gallstone pain. The pectin presents in pears helps reduce cholesterol gallstones, which in turn helps them pass throw the body freely.

Method: Mix half a pear juice cup with half a hot water cup and mix 2 honey spoons. Drinking this juice t3 times a day for 2 weeks. Alternatively, seed and peel some pears, chop the pears other symptoms into deny pieces and cook them in water for twenty minutes. Eat a cooked bowl of spicy pear 2 daily for 2 weeks.

Prevention of gallstones

Changing the lifestyle can reduce the risk of improving gallstones, avoiding fatty food, lowering cholesterol, and eating a healthy balanced diet are very useful for preventing gallstones.

Weight loss can help reduce the risk of gallstones, but it should be lost gradually because rapid weight loss can increase the risk of gallstones.

Many risk gallstones factors, such as age, family history, and gender, cannot be changed. You can reduce of improve gallstones by a healthy weight maintaining.

The gallbladder is a small gland located in the liver, and it is linked to the duodenum and stomach, as it secretes the bile juice needed to digest the fats in the food, and when the gallbladder is infected with infections or gallstones, of course, it is necessary to take treatment medications, but it is important to adhere to an auxiliary diet, and this food should be available It contains fat-free proteins and many vitamins and minerals that are important and even stimulating for the liver. Therefore, when discussing and talking about gallbladder infections, we must identify the best useful foods in this case, and this is what we know in this article.

The best food for patients with gallbladder infections

1- Cottage cheese: This type of cheese is distinguished by its lack of hard-to-digest fats for patients with infections and gallstones, so it is recommended to eat it to get the body's needs of calcium and easily digestible protein.

2- Lentils: rich in vegetable proteins that are free of fat, so it is easy to digest and does not constitute a burden on the gallbladder during digestion, as it does not require a large amount of bile juice during digestion, and therefore lentils are a good source of protein for patients with the gallbladder.

3- Yogurt Skimmed Yogurt: It provides the body with a huge amount of calcium and fat-free protein, so it is a suitable choice for patients with gallbladder infections.

4- Chicken: It is preferable to eat skinless chicken breasts to permanently get rid of fat. Eating grilled or boiled chicken for patients with gallbladder infections and stones is also preferable to obtain the necessary proteins for the body in a healthy way.

5- Leafy vegetables: rich in vitamins and minerals necessary for the health and activity of the liver, such as vitamin B, calcium, and magnesium, which helps the gallbladder to secrete bile juice well.

6- Courgettes: One of the best vegetables that are easy to digest and soothing to the stomach and intestines.

7- Parsley: One of the famous foods useful in cases of hepatitis and gallbladder, as it prevents indigestion when eating fatty meals such as meat, because it is a diuretic of bile and intestinal juices, and its juice has a good effect to relieve biliary colic.

8- Oats: Examples of whole grains that are good for liver diseases and gallbladder infections, as they provide the body with antioxidants that help treat infections and regulate sugar levels in the body.

9- Olive oil: It is one of the unsaturated oils recommended to be taken for patients with Cholecystitis. Scientific studies have also proven the benefit of olive oil to lighten the bile ducts and facilitate the passage of gallstones that cause inflammation.

10- Chamomile chamomile: It is useful in treating pain resulting from inflammation and gallstones, as it has a gentle calming effect, which works to achieve relaxation for the stomach, and helps relieve digestive troubles (DIGAC, 2021).

Conflict of Interest

The author hereby declares no conflict of interest.

Consent for publication

The author declares that the work has consent for publication.

References

A comprehensive encyclopedia about gallstones, their causes, treatment, and home recipes. 2022. www.thaqafnafsak.com/health.
Diseases and infections of the gallbladder - acute Cholecystitis. 2021. www.sehha.com/diseases/liver/gall-bldr3.htm.

Function of the gallbladder. 2022. Wikipedia, the free encyclopedia https://ar.wikipedia.org/wiki/Function_of_the_gallbladder.
Gallstones. Problems and Treatment, 2022. Middle Eastarchive.aawsat.com/details.asp?section=15&article=615329
Health information from the best medical websites about gallstones. 2021 www.doctoori.net/conditions/liver-gallbladder/gallstones.html.
Jenny, B. (2022). Are There Natural Ways to Treat Gallstones? Retrieved on the 28th of June,
Boston Children's Hospital. Gallstones (Cholelithiasis). Retrieved on the 28th of June, 2022.
Kerrey, B. B. (2022). Laparoscopic Surgery in the Pregnant Patient: Results and Recommendations. Retrieved on the 28th of June, 2022.
National Institute of Diabetes and Digestive and Kidney (NIDDK). Treatment for Gallstones. Retrieved on the 28th of June, 2022.
National Institute of Health (NIH). Gallbladder removal. Retrieved on the 28th of June, 2022.
Rohini, R. k. (2022). Nonsurgical Treatment Options for Gallstones. Retrieved on the 28th of June, Kiara Anthony. Relieving Gallbladder Pain Naturally. Retrieved on the 28th of June, 2022.
Rachel, N. (2022). Treatments for Gallbladder Problems during Pregnancy. Retrieved on the 28th of June, 2022.7-
Syrian researchers -Cholecystitis. acute and chronic 2022. www.syr-res.com/article/4864.html.

How to cite this article

Mohsen, B. M. and Al-Nadawi, D. F. A. M. (2023).: Gallstones causes and treatment: a review *Science Archives*, Vol. 4(2), 86-91
<https://doi.org/10.47587/SA.2023.4203>

This work is licensed under a [Creative Commons Attribution 4.0 International License](https://creativecommons.org/licenses/by/4.0/)



Publisher's Note: MD International Publishing stays neutral about jurisdictional claims in published maps and institutional affiliations.