CONDITION

Meckel diverticulum

A Meckel diverticulum is a small pouch present from birth in the lower small intestine.

WHAT IT IS
Congenital pouch in the lower small intestine

BODY SYSTEM
Digestive system

MAIN SYMPTOMS
Often none, rectal bleeding, abdominal pain, vomiting

WHAT CAUSES IT
Incomplete closure of a fetal intestinal duct

HOW IT IS DIAGNOSED
Meckel scan, other imaging, or surgery

MAIN TREATMENT
Observation or surgical removal

CAN IT BE CURED?
Yes - surgical removal eliminates the pouch

IS IT AN EMERGENCY?
Sometimes - heavy bleeding, severe pain, or obstruction

LONG-TERM OUTLOOK
Usually normal, especially after successful treatment

Overview

A Meckel diverticulum is a small pouch that projects from the lower part of the small intestine. It is present from birth. It is not a cancer, infection, or inflammatory bowel disease.

The pouch forms when a temporary connection used during early fetal development does not disappear completely. A Meckel diverticulum includes the normal layers of the intestinal wall. This makes it a "true diverticulum," although that medical detail usually does not affect daily life.

Most people who have one never know it is there. It may be found by chance during a scan or an operation for another reason.

In some people, the pouch causes bleeding, inflammation, or a blockage in the intestine. These complications can look like other conditions, including appendicitis. Recognising them matters

because they may require surgery.

Symptoms

A Meckel diverticulum usually causes no symptoms. When symptoms occur, they differ by age and by the type of complication.

Bleeding is a common presentation in children. Blood may appear maroon, dark red, or sometimes bright red. The stool can also look black and sticky if blood has been partly digested. Bleeding may be painless, but it can lead to tiredness, weakness, pale skin, or iron-deficiency anaemia.

Inflammation of the pouch is called Meckel diverticulitis . It may cause steady or worsening abdominal pain, often near the belly button or on the lower right side. Fever, nausea, vomiting, and tenderness can occur. These symptoms can closely resemble appendicitis.

An intestinal blockage may cause:

Symptoms alone cannot confirm a Meckel diverticulum. Many more common digestive conditions cause similar problems.

- Cramping or severe abdominal pain
- A swollen abdomen
- Repeated vomiting, sometimes green or yellow
- Trouble passing stool or gas

Causes and risk factors

A Meckel diverticulum develops before birth. Early in pregnancy, a structure called the vitelline duct connects the developing intestine to the yolk sac. This duct normally disappears. If part of it remains, it can form a pouch attached to the small intestine.

This is a congenital condition, meaning it is present at birth. It is not caused by diet, stress, alcohol, infection, or anything a parent did during pregnancy. It is not usually considered an inherited condition passed directly through families.

Some Meckel diverticula contain tissue that normally belongs elsewhere in the body. This is called ectopic tissue . Stomach tissue is the most important example because it can produce acid. That acid may damage the nearby small intestine and cause an ulcer and bleeding. Pancreatic tissue can also occur.

A diverticulum is more likely to come to medical attention when it contains ectopic tissue, has a narrow attachment, or becomes connected to fibrous bands inside the abdomen. These features cannot usually be identified without imaging or surgery.

Diagnosis

There is no routine screening test for a Meckel diverticulum. An asymptomatic pouch is often discovered unexpectedly during abdominal surgery or imaging performed for another reason.

If unexplained intestinal bleeding suggests a Meckel diverticulum, a technetium-99m pertechnetate scan , often called a Meckel scan, may be used. A small amount of radioactive tracer is given through a vein. The tracer collects in certain stomach-type cells, including ectopic stomach tissue inside some Meckel diverticula. A special camera then records where the tracer gathers.

A Meckel scan is generally more useful in children than adults. A negative scan does not completely rule out the condition, especially if the pouch does not contain enough stomach tissue to be detected.

Other tests may be selected according to the symptoms:

In some cases, the diagnosis is confirmed only during surgery. The removed tissue may then be examined under a microscope.

- Blood tests can check for anaemia, infection, or blood loss
- Ultrasound or CT imaging can look for inflammation or obstruction
- Capsule endoscopy uses a swallowed camera to examine the small intestine
- Angiography can sometimes locate active bleeding from a blood vessel

Treatment and management

A Meckel diverticulum that is causing significant bleeding, inflammation, a hole in the intestine, or obstruction is usually treated with surgery.

The operation may remove only the pouch. If nearby small intestine is damaged or contains an ulcer, a short section of intestine may also need to be removed. The healthy ends are then joined together. Surgery may be performed through several small cuts using a camera, known as laparoscopy, or through a larger incision when necessary.

Supportive treatment depends on the complication. It may include intravenous fluids, pain

relief, treatment for anaemia, or a blood transfusion after substantial bleeding. Antibiotics like amoxicillin or doxycycline may be used when there is infection, perforation, or significant inflammation. These measures manage the immediate problem but do not remove the diverticulum.

An asymptomatic Meckel diverticulum does not always need surgery. If it is found unexpectedly during another operation, the decision to remove it is individual. The surgical team considers its appearance, the person's age and health, suspicious tissue or fibrous bands, and the added risks of removal.

After an uncomplicated operation, eating and activity are increased gradually as the intestine recovers. Recovery time is affected by the type of surgery and whether there was bleeding, infection, obstruction, or a perforation.

Complications

Possible complications include:

Rarely, a tumour develops within a Meckel diverticulum. Most people with the condition do not develop this complication.

Perforation, severe obstruction, and uncontrolled bleeding require prompt hospital treatment.

- Intestinal bleeding: Acid-producing stomach tissue can cause an ulcer in nearby intestine
- Diverticulitis: The pouch becomes inflamed and sometimes infected
- Obstruction: The intestine may twist, become trapped by a fibrous band, or fold into itself
- Perforation: A hole develops in the pouch or nearby intestine
- Intussusception: One section of intestine slides into another, which can block blood flow
- Anaemia: Repeated or heavy bleeding lowers the number of healthy red blood cells

Prevention

A Meckel diverticulum cannot be prevented because it forms during fetal development. There is no known diet, medicine, or lifestyle change that stops it from forming.

If you already know you have one, routine dietary restrictions have not been shown to prevent complications. Follow-up is based on whether it has caused symptoms and whether it was removed.

You also cannot reliably prevent an asymptomatic diverticulum from becoming inflamed or

bleeding. Knowing the warning signs can help you seek care if a complication develops.

Living with it and what to expect

Many people live their entire lives without symptoms or restrictions. If a Meckel diverticulum is found by chance and left in place, you may not need ongoing tests. Your clinician can explain why observation or removal was recommended in your situation.

A diverticulum that remains in place does not usually shrink or disappear. It may never cause trouble, but a future complication cannot be ruled out completely.

After successful surgical removal, the diverticulum does not grow back. Most people can return to their usual diet and activities after recovery. Removing a short section of small intestine generally does not cause a lasting digestive problem, although outcomes are influenced by the extent of surgery and the severity of the original complication.

Arrange routine follow-up after surgery to review wound healing, bowel function, activity limits, and any laboratory results. Contact the surgical team sooner for increasing wound redness, drainage, fever, worsening pain, or persistent vomiting.

When to get medical help

Seek urgent same-day medical assessment for blood in the stool, black sticky stool, new persistent abdominal pain, or symptoms of anaemia such as unusual tiredness, breathlessness, dizziness, or pale skin. These symptoms have many possible causes and need proper assessment.

Go to an emergency department or call emergency services if you have:

These features may indicate major blood loss, intestinal obstruction, perforation, or another serious abdominal condition.

A Meckel diverticulum found by chance without symptoms is not usually an emergency. Discuss it during routine follow-up unless new symptoms develop.

- A large amount of rectal bleeding or bleeding that continues
- Fainting, confusion, marked weakness, or cold clammy skin
- Sudden severe or rapidly worsening abdominal pain
- A hard, very tender, or increasingly swollen abdomen
- Repeated vomiting with an inability to pass stool or gas

- Severe pain with fever or signs of collapse

Common questions

Is a Meckel diverticulum the same as diverticulitis?

No. A Meckel diverticulum is a congenital pouch in the small intestine. Meckel diverticulitis means that this specific pouch has become inflamed. The more common condition called diverticulitis usually affects acquired pouches in the large intestine.

Can a Meckel diverticulum cause blood in the stool?

Yes. Stomach-type tissue inside the pouch can release acid, which may create an ulcer in the nearby intestine. Bleeding may be red, maroon, or black. Any unexplained blood in the stool needs medical assessment.

Can it be seen on a colonoscopy?

Usually not. A standard colonoscopy examines the large intestine and the very end of the small intestine. A Meckel diverticulum is generally farther inside the small intestine. A Meckel scan, capsule endoscopy, other imaging, or surgery may be needed.

Does every Meckel diverticulum need to be removed?

No. Surgery is generally used when it causes bleeding, inflammation, obstruction, perforation, or another complication. Removal of an asymptomatic pouch found by chance is considered individually because surgery also carries risks.

Can adults have symptoms for the first time?

Yes. Although complications often appear earlier in life, an adult can develop bleeding, inflammation, or obstruction for the first time. New symptoms should not automatically be blamed on a known Meckel diverticulum because other conditions can look similar.

Can it come back after surgery?

A completely removed Meckel diverticulum does not grow back. Symptoms can continue if they have another cause or if recovery is complicated, so persistent bleeding, pain, fever, or vomiting still requires assessment.

Sources

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