

Bariatric surgical procedures

Surgical procedures for the treatment of **Obesity** (bariatric procedures) are the most effective method of treatment and are currently performed almost exclusively laparoscopically, minimally invasively, and the need for conversion to open surgery is exceptional.

Gastric band

Gastric banding is one of the most well-known and simplest, but at the same time less effective procedures. Currently, this method is being abandoned due to late complications.

During surgery, the stomach is ligated with a vascular prosthesis or a special clamp. The stomach is bypassed and not opened. An orifice of around 10-12 mm is formed, so the stomach takes on a new shape that is similar to an hourglass. The upper compartment is created so that its content is around 50 ml.

Classic gastric banding was a standard treatment procedure that was very effectively performed in patients who had failed other treatments already at the end of the last century.

A more modern and more widely used variant of the procedure today is the so-called **adjustable stomach band**, in which the cuff is filled with liquid and the connecting tube is led into the subcutaneous tissue, ending with a chamber into which the liquid can be injected. By injecting the liquid, the opening of the bandage can be reduced or enlarged as needed.

In the Czech Republic, around 400 procedures were performed annually. Today, their number is increasing (in our country and in the world) and now reaches up to 1,500 performances per year in the Czech Republic. This is mainly because bariatric procedures are the only treatment that has been shown to significantly reduce patient mortality. It is also the only treatment that leads to remission in patients with type 2 diabetes. (STAMPEDE trial (<https://www.nejm.org/doi/full/10.1056/nejmoa1600869>)) The number of operations is increasing, but the proportion of bandages is decreasing in favor of more effective methods of bariatric and metabolic surgery.

With classic bandaging, the narrowing is fixed, especially in less cooperative patients, the upper part of the stomach may expand. When measured after 2-3 years, the upper compartment can increase up to 7 times. A patient who is uncooperative and unable to limit per os intake vomits after the procedure. Transient vomiting in adaptation to a new state does not matter. Esophageal reflux disease.

The bandage can also cut through and, without causing any sudden abdominal event, leave through the intestine. Narrowing may also occur at the bandage site. Initially, these complications were reported to affect only a minimal number of patients, especially non-cooperative ones. With the length of the follow-up, i.e. with the distance from the implantation of the foreign material, the incidence of complications and problems with the bandage also increases.

In our files, the need for removal occurs in about 15% of patients, but according to published world files, up to 30-50%. Therefore, gastric banding is usually abandoned in favor of other, newer surgical methods with higher efficiency, better compliance and a lower risk of complications.

Currently, the so-called **sleeve gastrectomy**, also called tubulization of the stomach, is increasingly indicated. With this resection operation, the stomach turns into a narrow tube and there is no risk of stretching and losing the effect.

In the world, up to a third of bariatric procedures are shunt procedures, e.g. **gastric bypass (Roux-en-Y gastric bypass)**, OBR or biliopancreatic diversion. They can cause severe malnutrition, but they are indicated for some patients and are starting to be performed again in our country.

Metabolic surgery

The introduction of the term "metabolic and bariatric surgery" to denote the treatment not only of obesity, but especially of metabolic internal diseases related to obesity, is a worldwide trend.

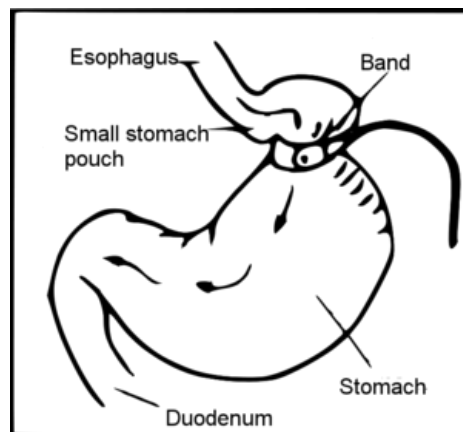
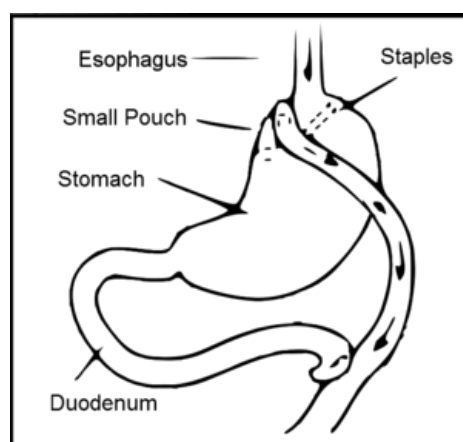


Diagram – gastric banding



Scheme - gastric bypass (Roux-en-Y)

The definition of **metabolic surgery** can be dated back to 1976, when H. Buchwald defined interventions on healthy organs and organ systems with the aim of inducing an improvement in the overall state of health. Under the name of bariatric surgery, the surgical treatment of severe obesity has become known to many patients, especially women (i.e. approx. 80% of those operated on), but adequate acceptance of the metabolic effect of these surgical interventions by the professional public has not been achieved.

Gastric bypass surgery, which is the most widespread operation in the world, was named in the Annals of Surgery in 1995 as the most effective treatment for diabetes in adults (W. Pories), the metabolic effect of the operation leads to a rapid and significant improvement to the remission of the otherwise incurable most common metabolic internal disease.

Our Czech bariatric groups are dominated by less metabolically effective interventions, therefore the experience of domestic diabetologists and internist obesitologists will not be so favorable.

When comparing gastric banding, gastric plication, sleeve resection of the stomach and gastric bypass, it is proven that the metabolic effect is different after each operation, and increases with the technical difficulty and complexity of the operation (51st diabetes days Luhačovice, 2015, M. Čierny). In type 2 diabetics, one year after gastric bypass, resolution of diabetes can be expected (diabetes resolution according to BAROS), i.e. adjustment of glycemia without the need for antidiabetic medication in the majority of patients operated on, but after bandaging, plication and tubulization of the stomach, a less significant improvement in metabolic parameters is achieved.

It is noteworthy that the **metabolic effect occurs before weight reduction can take effect**, i.e. within days. It cannot be considered a consequence of weight loss, it does not depend directly on weight loss. In particular, the humoral - incretin effect is described, the levels of gastrointestinal hormones such as GLP-1, PYY and others rise, but other effects are sought, such as changes in the representation of commensal bacterial flora in the colon. Patients after gastric bypass **favorably change their dietary preferences** in favor of less sugary and less fatty foods, their prospects for successful compliance with metabolic-bariatric surgery improve compared to those undergoing simpler restrictive procedures. Hypotheses about "forgut" and "hitgut" factors after bypass operations today are not a sufficient explanation of all the processes and mechanisms of the metabolic effect of the operations, which are still subjected to extensive research (certainly with the generous support of the pharmaceutical industry), whose commercial interests cannot be neglected.

At a time when surgical interventions represent the most effective (potentially curative) treatment of the most common internal metabolic diseases that cannot be cured except by surgery, metabolic and bariatric surgery encounters a **conflict with the established boundaries between the fields**. In addition, it turns out that the internist, or its early indication. With the duration of conservative treatment of type 2 diabetes, the metabolic effect of bariatric surgery decreases, **postponing surgery proves to be counterproductive** and the real chance of disease remission is lost. Therefore, especially in diabetics, emphasis is placed on the early indication of surgery and not waiting for the exhaustion of all methods of conservative treatment. Helpful multidisciplinary cooperation at all levels is in the eminent interest of obese patients with internal comorbidities. The most effective treatment available for internal disease cannot be delayed or denied just because bariatric/metabolic surgery falls under the purview of another field.

Indication

Indications for bariatric procedures are:

- obesity with a BMI over 40, or over 35 with complications, BMI even lower, if BMI was ever over 35 in the patient's life;
- failure of conservative treatments;
- cooperative patient suitable for the procedure from a psychological point of view - not suffering from Bulimia, capable of long-term dispensary.

Before the procedure, the patient must be examined obesitologically and psychologically by a doctor who has experience with the indication for the procedure. In the standard preoperative examination, fiberoscopy is appropriate to rule out Reflux esophagitis. A special diet follows the procedure.

Diet

During the stay in the hospital, the patient first receives a tea, liquid, then a mixed or mushy diet with a sparing treatment. It is also necessary to limit the volume from 50-150 ml per 1 portion and more portions per day.

The diet is very individual, it is based on the principles of a combination of **sparing and reduction diet**, in which flatulent foods with hard skins and grains, fresh leavened bread, flatulent vegetables, foods with high energy content - fatty cheeses, fatty meats, sausages, cream, are excluded from the diet. ice creams, creams, confectionery, chocolate, sweets, alcoholic drinks, sweetened drinks, lemonades, fried foods, nuts... At the same time, it is necessary that the passage in the stomach is not slowed down, therefore we choose a diet containing non-swelling fruits and vegetables (grated or pureed carrots, spinach, apple or apricot puree, etc.), lean meat, cottage cheese, cheese, yogurt, skimmed milk, low-energy drinks, pressed potatoes, rice, pasta.

Eating rules

Eating rules:

- the food is mushy at first, later slow chewing is necessary so that it is well ground;
- we cannot be disturbed while eating;
- due to small portions, it is necessary to eat 4-6 times a day;
- we will extend the doses and intervals, especially if there is a tendency to vomit (exceptionally up to 8 times a day);
- if the effect of the operation is small, we will limit the intake to three doses a day. This is especially common in diabetics and patients with metabolic syndrome;
- we do not drink immediately after a meal, so as not to increase the volume of the diet;
- it is also advisable to add minerals and vitamins as needed.

Links

related articles

- Principles of obesity treatment
- Diet for obesity
- Diet therapy

Source

- SVAČINA, Štěpán. *Dietologie a klinická výživa* [online]. [cit. 2012-03-10]. <<https://el.lf1.cuni.cz/p66466615/>>.