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## SACROCOCYGEAL PILONIDAL CYST WITH THE DISEASE ONSET AS AN ANTERIOR PERIANAL ABSCESS: A CLINICAL CASE

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**The aim.** To analyze the clinical case of surgical treatment of a patient with a pilonidal cyst (PC) of the sacrococcygeal area, which manifested as an anterior perianal abscess, and to justify the need for an in-depth differential and diagnostic search in patients with corresponding clinical manifestations of perianal pathology.

**Description of a clinical case.** The article describes a clinical case of successful treatment of a 24-year-old patient with a pilonidal cyst of the sacrococcygeal area and a purulent secondary fistula that mimicked a perianal abscess with an incomplete external fistula of the rectum. Data are given on the step-by-step performance of the diagnostic process and the choice of optimal surgical treatment tactics.

**Results and discussion.** The described clinical case is interesting for specialists and its detailed coverage due to: a) the presented atypical course of PC; b) selected diagnostic tactics; c) the selected method of operative treatment of the patient. The points mentioned above are described in detail in the section, with coverage and visualization of possible alternative options for the patient's diagnosis and the use of various tactics for surgical treatment.

**Conclusions.** Conducting an extended differential diagnostic search using additional instrumental imaging methods is justified in patients with pilonidal disease with an atypical or blurred course. Performing a complete perioperative set of examinations allows for choosing the correct surgical tactics for treating such patients. The use of a full-fledged invasive examination of the perianal area using methods of regional or general anesthesia is reasonably justified in case of suspicion of insufficient informativeness of clinical-instrumental, laboratory, and imaging methods of examination

**Keywords:** pilonidal disease, pilonidal cyst, perianal abscess, sacrococcygeal area, fistula excision technique, differential diagnosis

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### 1. Introduction

Pilonidal disease (PD) is a common pathology with a prevalence of approximately 26 per 100,000 population in high-income countries [1]. Most often, it manifests for the first time at the age of 20–30 years and is rarely observed before the onset of puberty. Men are affected more often than women with an approximate ratio of 2:1 [2]. Most often, PD develops in the sacro-coccygeal area and very rarely has other localizations: the umbilical area, interdigital folds, the area of the mammary glands. [3]. According to current research, risk factors for the disease are considered to be male gender, young age, obesity, certain variations of ethnicities, increased hair growth, deep natal cleft and insufficient level of hygiene, first of all, of the perianal area [4]. In the available studies, risk factors are considered to be certain types of professional activities that are associated with long-term sitting and permanent minor traumatization of the sacrococcygeal area [5]. PD of the sacrococcygeal area has different clinical and morphological

forms. Depending on the classifications, 3 fundamentally different forms of PD can be distinguished from the point of view of the diagnostic and treatment approach: pilonidal abscess (PA), symptomatic pilonidal cyst (SPC) and asymptomatic pilonidal cyst (APC) [6].

Today, the question of the etiology of PD remains debatable, however, the generally accepted point of view is that PD is an acquired disease and not congenital [7]. Modern research is aimed at investigating the role of pathology of hair follicles and sweat glands in the relevant area [8]. Today, the most substantiated etio-pathological theory of PD development is follicular-retention [9]. According to her, the initial changes occur in the hair follicles of the sacrococcygeal area in the form of their increase, which leads to further local inflammation in the area of the follicle against the background of sweat and sebaceous gland dysfunction. The movement of the buttocks during upright walking and the shape of the natal cleft contribute to the arrival of hairs from other parts of the body to the bottom of

the intersciatic fold, which, under the influence of negative pressure, migrate into the cavity formed at the site of local follicular inflammation. The next stage is an increase in the size of this cavity with the formation of a reaction to a foreign body (hair) and the attachment of an infection, which leads to the formation of a cyst or abscess [10].

PD can manifest as acute PA or as APC. Regardless of the initial form of the disease, such patients, for the most part, require surgical treatment. To date, there is no absolute consensus of the scientific and medical community regarding the definition of optimal surgical tactics for such patients, despite the existence of guidelines and local recommendations for the treatment of PD [11]. Surgical treatment of acute PA follows the classic principles of purulent surgery and involves dissection and drainage of the abscess. A specific point in the surgical approach to PA is the lateralization of the wound for drainage (making an incision lateral to the posterior midline) [12]. There is also no established surgical consensus for the surgical treatment of APC. According to various studies, it is possible to use preventive (surgical intervention) and expectant approaches (conservative treatment in case there are no clinical symptoms and a decrease in the patient's quality of life). SPC treatment options can be conditionally divided into the following groups:

a) non-surgical methods (hair removal, injections of sclerosing agents into the cyst cavity);

b) excisional methods with or without primary wound closure;

c) mini-invasive techniques without excision (various variations of the "pit-picking technique", curettage of the cyst cavity with or without the use of different surgical energies, endoscopic techniques – EPSiT) [13];

d) flap techniques (Bascom 2 operations, Karydakis flap procedure, Limberg flap, etc.).

Regarding the optimal choice of the method of surgical treatment of SPC, especially its recurrent form, a scientific debate is ongoing, however, today the leading concept in the treatment of SPC is "less is more", i.e. giving preference to treatment methods with a lower level of surgical aggression, since complications of surgical treatment can be worse for the patient than the main disease [14].

The differential diagnosis of PD is also an important issue. And although, according to the guidelines, the use of complex imaging methods is not routine [11], some studies indicate the importance of performing a wide package of perioperative clinical and instrumental examinations [15]. Most often, PD requires differential diagnosis with hidradenitis suppurativa, local furunculosis, perianal manifestations of Crohn's disease, perianal fistulas and abscesses, specific infectious lesions (syphilis, tuberculosis, actinomycosis), presacral tumors [16].

**The aim.** To analyze the clinical case of surgical treatment of a patient with a pilonidal cyst of the sacrococcygeal area, which manifested as an anterior perianal abscess, and to justify the need for an in-depth differential and diagnostic search in patients with corresponding clinical manifestations of perianal pathology.

## 2. Description of a clinical case

In January 2023, a 24-year-old patient came to the admission department of Kyiv municipal hospital No. 18 with complaints of swelling, pain, and the appearance of purulent discharge in the perianal area that appeared 2 days ago. The patient was examined by a surgeon, hospitalized in the surgical department for further examination and determination of further treatment and diagnostic tactics. According to the anamnesis, according to the patient, there are no concomitant diseases. Constipation, which the patient associates with a disordered diet and which is accompanied by difficult defecation with pain in the anal canal and a slight discharge of bright red blood, is a periodic concern. He did not seek medical help for this problem, he did not receive treatment. Smokes (1 pack/day) for 5 years, does not drink alcohol. He works as a truck driver. Genetic anamnesis is not burdensome. The above-mentioned complaints have been troubling the patient for 2 days, and significantly worsened 6 hours ago. According to the patient, 3 months ago he had similar complaints, for which he was treated in the surgical department of another medical institution, where the diagnosis of "acute perianal abscess" was established. At the same time, the patient underwent surgical intervention in the scope of "Incision and drainage of the abscess", antibiotic therapy was prescribed: Ceftriaxone 2 g IV once daily for 3 days.

Discharged from the hospital for 4 days with improvement. The postoperative wound completely healed within a month.

At the time of the objective examination:

– the patient's height is 175 cm;

– weight is 74 kg;

– body mass index is 24.2.

Indicators:

– body temperature – 37.1 °C;

– blood pressure – 130/80 mm Hg;

– heart rate – 77/min;

– RR – 12/min;

– SpO<sub>2</sub> – 99 %.

During the general typical physical examination, except for the perianal area, no pathology was detected. Status localis: perianal area – for 8 hours of the conventional dial (CD) at a distance of 4 cm from the anus, there is a swelling, painful on palpation, with a subcutaneous infiltrate of 2x3 cm, there is fluctuation. In the center of the swelling, there is a hole from which white purulent contents drain when pressed. From the swelling, a subcutaneous connective tissue cord can be palpated, which has a direction to the top of the coccyx. When examining the perineal fold: 4 cm above the anal edge along the back medial line, two fistula openings were found, in one of the openings the presence of hairs was visualized - extracted (hairs up to 2 cm long, morphologically corresponding to the tufted type of hair). Palpation in the above-described area is painless, there is no drainage of contents from both openings, and no infiltration. Per rectum: the examination is painless, the tone of the sphincter is satisfactory, the willpower is sufficient. Hemorrhoid nodes are not enlarged. At 6 and 12 hours there are no CD signs of the presence of an internal fistula opening, however, at 12 hours CD, a slight thickening of the mucous membrane, according to

the type of scar tissue, is palpable. During anoscopy: the mucous membrane of the rectum is pink, the internal hemorrhoidal nodes are not enlarged, for 6 and 12 hours CD of the internal fistula opening was not visualized, at 12 h CD – a linear connective tissue scar up to 2 mm. Probing the hole of the perineal abscess and the holes in the sacro-coccygeal area is very painful, stopped.

At the next stage, the patient underwent: general clinical blood tests (CBT) (CBC, biochemical profile, ABO-Rh test, blood coagulation tests, urinalysis), chest X-ray, ultrasound of the sacrococcygeal region. In connection with the suspicion of the presence of a perianal abscess connection with the rectum, an MRI of the pelvis with IV contrast was performed.

According to the obtained results of examinations: CBT – leukocytosis  $12 \times 10^9$ , other indicators – without peculiarities. Chest X-ray is within normal limits. Ultrasound of the sacro-coccygeal area – signs of a subcutaneous cystic formation of 2x3 cm without liquid content. MRI of the small pelvis with intravenous contrast (SIEMENS MAGNETOM Symphony 3 device with induction of a magnetic field of 1.5 T in standard orthogonal projections with T1-, T2-, T1fs-, T2 pair-, DWI- images): in the subcutaneous tissue of the ischial fold to the left behind m. levatoris, a fluid fistula course, not connected to the anal canal or muscles, with a diameter of 3 mm, a length of about 59 mm, which starts from the skin conditionally at the level of the anal canal and passes subcutaneously at a depth of about 6 mm, going obliquely down, blindly, is defined ending in tissue conditionally at a depth of 2 mm from the skin. Other organs and structures of the pelvis are without features. MRI-conclusion: MR-signs of a fistula course in the tissue at the level of the inguinal fold on the left, without connection with the anal canal or muscles. Data for the presence of a transsphincter fistula weren't obtained. No pathological changes in the pelvic organs were found.

Considering the received data of clinical and instrumental examinations, a clinical diagnosis was established: perianal abscess with an incomplete external perianal fistula. Pilonidal cyst, Tezel type 1. A decision was made to carry out surgical intervention under spinal anesthesia, which will consist of two stages:

- 1) probe examination of the fistula passage;
- 2) opening and drainage of a perianal abscess.

The final amount of surgical intervention should be established intraoperatively after the 1st stage.

On the same day, surgery was performed under spinal anesthesia. Perioperative antibiotic prophylaxis: Cefazolin 1 g and Metronidazole 500 mg IV once 30 minutes before surgery. The patient is placed in the lithotomy position. When anesthesia of the operative field is achieved, probing of the perianal hole is performed, from which purulent contents are drained. Without applying excessive force, a clear connection with the pilonidal cyst of the sacrococcygeal region was obtained,

the end of the probe was visualized through the primary fistula of the cyst. A dye (diamond green) is injected into the fistula. Connection with the rectum is excluded. Taking into account the received data, a decision was made to carry out the next stage of the operation. The patient is repositioned on the stomach. The operating field is processed. The secondary fistula opening is probed, connected to the primary ones. 2 primary fistula passages were excised with a punch blade, the cyst cavity was revised: it contained a small amount of serous fluid and a single hair. On the probe, the secondary fistula course is cut out together with the inflamed secondary fistula opening. Up to 10 ml of purulent content in the sinus. A skin bridge with a width of up to 3 cm was preserved between the cyst and the fistula, within which a subcutaneous excision of the fistula was performed. The tissue was sent to histopathohistological examination. The fistulectomy wound is partially sutured with liquid knotted sutures. Aseptic dressings.

A postoperative clinical diagnosis was established: Tezel type 4 pilonidal cyst with suppuration of the secondary fistula. Final volume of surgical intervention: revision of the fistula tract. Excision of primary fistula openings "pit-picking technique by Moshe Gips", excision of secondary fistula tract. The early postoperative period was uncomplicated, in which the patient received non-narcotic analgesia. In 1 p/o day, a dressing was performed - without special features. On the 2nd postoperative day, the patient was discharged home in satisfactory condition. Outpatient dressings and control were carried out on days 5, 10, 15 and 30. Patient observation (follow-up period) – 12 months. During the observation period, there is no relapse (Fig. 1–5).



Fig. 1. Postoperative day 1



**Fig. 2.** Postoperative day 5



**Fig. 4.** Postoperative day 30



**Fig. 3.** Postoperative day 15



**Fig. 5.** Postoperative day 40

### 3. Discussion of research results

The described clinical case is interesting for specialists and its detailed coverage due to: a) the presented atypical course of PD; b) selected diagnostic tactics; c) the selected method of operative treatment of the patient. We consider it appropriate to focus attention in the discussion on these three points.

When the patient was admitted to the hospital, our attention was directed to the swelling of the perianal area, which had a typical morphological pattern of a perianal abscess connected to the rectum. This was indicated by: typical localization, the patient's profession as a risk factor, the patient's history (episode of a similar disease 3 months ago), the presence of a subcutaneous fibrous cord that had a cranial direction of travel near the anal canal, cicatricial changes in the posterior semicircumference of the anal canal in the area of pectinate line. Cicatricial changes in the anal canal could be the result of the healing of the anal fissure (which corresponded to the patient's anamnesis) or could be an internal fistula opening (with signs of scarring) of a perianal fistula. Together with the morphological characteristics of the abscess (4 cm from the anal canal, anterior localization and subcutaneous fibrous cord), such changes corresponded to Goodsall's rule (GR), according to which the location of the external fistula opening (FO) of the perianal fistula is in front of the transverse line that bisects the anus indicates the presence of a radial fistula that opens into the front wall of the anal canal, provided that the FO is at a distance of less than 3 cm from the anal edge, otherwise the fistula is directed to the back wall of the anal canal [17].

Failure to palpate the fistula opening due to pain did not provide insight into the potential relationship of the perianal abscess to the patient's asymptomatic pilonidal cyst. However, we do not consider it expedient to perform probing of sinus passages that cause severe pain syndrome. In our opinion, this manipulation should be performed under adequate local or general anesthesia as a stage of surgical intervention or separately.

A pilonidal cyst was diagnosed based on the presence of fistulae along the posterior medial line at the bottom of the natal cleft, from which hair was extracted. There was no clear palpable course of the fistula to the cyst. Therefore, the diagnosis "Pilonidal cyst, Tezel type 1" was established.

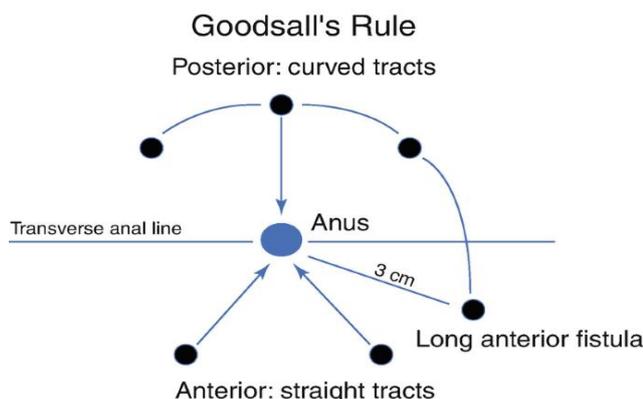


Fig. 6. Visualization in the form of a scheme of Goodsall's rule [18]

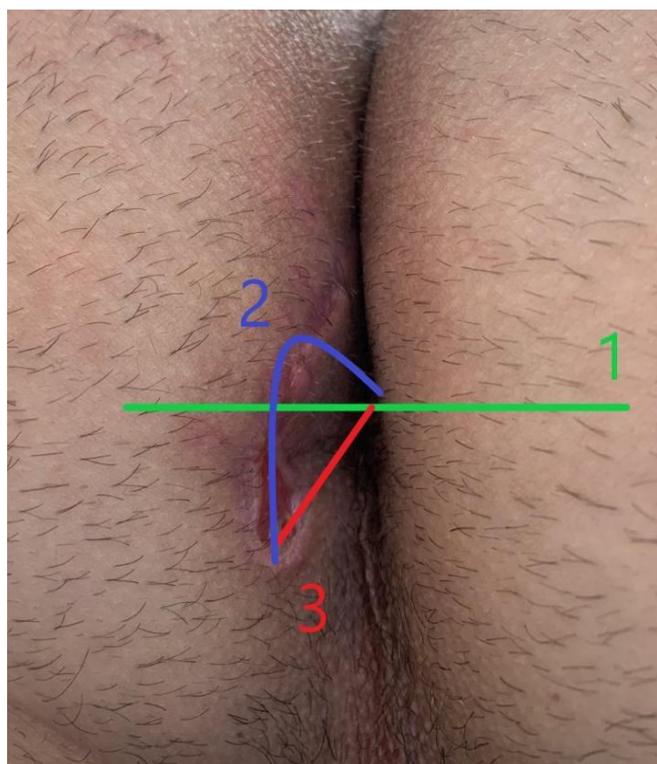


Fig. 7. Schematic representation of the interpretation of Goodsall's rule on a patient presented in a clinical case:

- 1 – a transverse line that bisects the anus;
- 2 – probable course of fistula, course according to Goodsall's rule;
- 3 – the distance between the external fistula and the anal edge (in this case > 3 cm)

Type	Tezel classification
I	Asymptomatic sinus
II	Acute pilonidal abscess
III	Chronic (symptomatic) restricted in navicular area
IV	Chronic (symptomatic) exceeded navicular area
V	Recurrent pilonidal sinus

Fig. 8. Tezel classification of sacrococcygeal PC [19]

At the preoperative stage, we made a decision to perform an MRI of the small pelvis, according to the results of which we were able to suspect that the perianal abscess does not have a reliable connection with the rectum. Today, according to research results, MRI and ultrasound (first of all, transrectal ultrasound) have the greatest informative value for clinical verification of PC and perianal fistulas [15]. We considered the obtained results as the need to perform intraoperative probing of the canaliculi (to exclude communication with the rectum) – 1 stage of the operation.

After performing the 1st stage of the surgical intervention, we received reliable information that the perianal abscess is an atypical purulent secondary fistula course of the pilonidal cyst, which, in turn, did not have a deep morphological distribution in the natal cleft. Thus, we classified this variant of PC as "Piloni-

dal cyst, Tezel type 4", although, considering the history (abscess opening episode 3 months ago), PC could also be classified as "Pilonidal cyst, Tezel type 5". Since there were no serious pathological changes in the area of the natal cleft, we chose the tactic of performing a mini-invasive surgical intervention "pit-picking technique according to the Moshe Gips method" in this area. Since the secondary fistula course was purulent and did not lie deep under the skin, the tactic of excision of the course with a probe within healthy tissues was chosen. A skin bridge was left in the area of entry of the fistula to the natal cleft in order to speed up healing and avoid the formation of a weakly granulating wound. The part of the postoperative wound, where the perianal abscess was located, was not sutured, because there was a long-term inflammation in this place with infiltration of subcutaneous fatty tissue.

#### 4. Conclusions

Conducting an extended differential diagnostic search using additional instrumental imaging methods is justified in patients with pilonidal disease with an atypical or blurred course. Performing a complete periopera-

tive set of examinations allows choosing the correct tactics of surgical treatment of such patients. The use of a full-fledged invasive examination of the perianal area using methods of regional or general anesthesia is reasonably justified in case of suspicion of insufficient informativeness of clinical-instrumental, laboratory and imaging methods of examination.

#### Conflict of interests

The authors declare that they have no conflict of interest in relation to this research, including financial, personal, authorship, or any other nature that could affect the research and its results presented in this article.

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#### Data availability

The manuscript has no associated data.

#### Use of artificial intelligence technologies

The authors confirm that they did not use artificial intelligence technologies when creating the presented work.

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