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# CLINICAL GUIDELINES

## Perianal abscess (K61, K61.0, K61.1, K61.2, K61.3, K61.4), adults, children

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**LIST OF ABBREVIATIONS**

IBD — inflammatory bowel diseases

AS — Anal sphincter

MRI — magnetic resonance imaging

PA — perianal abscess

AF — anal fistula

TRUS — transrectal ultrasound examination

**TERMS AND DEFINITIONS**

**Anal fistula** is a pathological passage between the anal canal and its surrounding tissues and/or organs and/or perianal skin.

**Morgagni's crypts** are small depressions between the longitudinal folds of the mucous layer (Morganian columns) located directly above the dentate line located in the upper third of the anal canal.

**Anaerobic perianal necrotizing infection** is a process caused by a clostridial infection, characterized by an extremely severe course.

## **1. BRIEF INFORMATION ON THE DISEASE OR CONDITION (GROUP OF DISEASES OR CONDITIONS)**

### **1.1 Definition of a disease or condition (group of diseases or conditions)**

PA (PA) is an acute inflammation of the perianal tissue caused by the spread of a inflammation from anal crypts and anal glands. The main cause of the PA is a mixed intestinal microflora, more often represented by aerobic microorganisms [1–5]. Anaerobic perianal necrotizing infection is a separate life-threatening disease, accompanied by a high mortality rate, requiring completely different diagnostic and therapeutic approaches than PA and is not considered in these clinical guidelines.

### **1.2 Etiology and pathogenesis of a disease or condition (groups of diseases or conditions)**

Cryptogenic PA is most common (about 90%), other causes are less common as a complication of other diseases such as IBD, tumors, pelvic cysts, teratomas, injuries and radiation lesions. The PA is due to a number of predisposing factors: weakened immunity, microcirculation disorders,

gastrointestinal disorders, complications of hemorrhoids, fissures, and cryptitis. In childhood, primary immunodeficiency conditions may be the cause of PA. In addition, an inborn theory is being considered based on the concept of an imbalance of androgens and estrogens or excessive androgen stimulation of the mucous glands, which causes the Morgagni's crypts to become 1–2 mm deeper than usual [1–3,5–9].

### **1.3 Epidemiology of a disease or condition (groups of diseases or conditions)**

PA is the most common disease in the practice of emergency proctology. Patients in this group account for about 1% of all those hospitalized in various surgical units and 5% of those suffering from diseases of the colon and rectum [10, 11]. In general, the incidence of PA among the adult population is 16.1–20.2 per 100,000 [4,12,13]. From 2% to 7% of all surgical diseases of childhood requiring inpatient treatment occur in patients with PA. It can occur in any age group in children, but it is absolutely prevalent in children of the first months of life — 22–60% [14].

### **1.4 Specific coding features of a disease or condition (group of diseases or conditions) according to the International Statistical Classification of Diseases and Health-Related Problems**

#### **ICD-10 codes**

Class — Diseases of the digestive system (XI).

Block — Abscess of the anus and rectum (K61).

Code:

**K61.0** — Anal abscess

**K61.1** — Rectal abscess

**K61.2** — Anorectal abscess

**K61.3** — Ishio-rectal abscess

**K61.4** — Intraspincter abscess

### **1.5 Classification of a disease or condition (groups of diseases or conditions)**

**By localization of the lesion relative to anatomical formations:**

a) subcutaneous;

- b) submucosal;
- c) intermuscular;
- d) ischioanal;
- e) pelvic-rectal: — pelviorectal; — retro-rectal

**According to the site of the inflammatory focus according to the conventional dial:**

- a) posterior (from 4 to 8 o'clock of the conventional dial);
- b) anterior (from 10 to 2 o'clock on the conventional dial);
- c) lateral (from 8 to 10 o'clock of the conventional dial or from 2 to 4 o'clock of the conventional dial);
- d) horseshoe type (when the inflammation spreads to more than one of the above areas).

**By the topography of the purulent track (with its intraoperative detection):**

- a) intrasphincteric;
- b) transsphincteric;
- c) extrasphincteric.

**1.6 The clinical picture of the disease or condition (groups of diseases or conditions)**

The clinical picture depends on the severity, site and prevalence of the inflammatory process. With subcutaneous PA, a dense infiltrative form in the perianal area with hyperemia of the skin above it, painful on palpation, possibly with a fluctuation site. The pain is worse when defecating, sitting, coughing, and walking. Symptoms of intoxication are usually absent. Submucosal PA is manifested by pain during defecation, an increase in body temperature to subfebrile, and symptoms of intoxication are often absent. Subcutaneous and submucosal localization of PA prevails in infants. With ischioanal PA, in addition to pain, asymmetry of the buttocks is detected, skin hyperemia is delayed for 5–6 days. Ischioanal PA in the first days of the disease is accompanied by symptoms of intoxication, and later local changes appear in the perianal area: asymmetry of the buttocks, thickening and hyperemia of the perianal skin.

Pelviorectal PA has the most severe course, with pronounced symptoms of intoxication (malaise, weakness, sleep disorders, severe night sweating,

chills, febrile fever, headaches, dizziness). It is also possible to experience pain in the lower abdomen. The indeterminate symptoms last up to 12 days on average, followed by discomfort and pain in the anal canal during defecation, difficult emptying the rectum, difficult urinating, and pain in the lower limb on the PA side along the nerves. On palpation, men may have an urge to urinate due to the infiltration of the urethra [1,15–19].

**2. DIAGNOSIS OF A DISEASE OR CONDITION (GROUP OF DISEASES OR CONDITIONS), MEDICAL INDICATIONS AND CONTRAINDICATIONS TO THE USE OF DIAGNOSTIC METHODS**

**The criteria for diagnosis / condition** are based on the data of a clinical checkup and, if necessary, an instrumental diagnostics.

Differential diagnosis of PA caused by primary inflammation in the anal crypt should be performed with:

1. Inflammatory diseases of the skin of the perineum, sacrococcygeal and gluteal area.
2. Bartholinite.
3. Presacral cysts with inflammatory component.
4. Lesions of the perianal area.
5. Teratomas.
6. Anaerobic perianal infection.
7. Rectal tumors.
8. Crohn's disease, ulcerative colitis complicated by abscess.
9. Diverticular disease complicated by abscess.
10. Complications of radiation therapy.

**Principles of diagnosis making**

When making a diagnosis, the localization of the inflammatory process should be described. The following are examples of the diagnosis formulations:

1. Acute anterior horseshoe-shaped PA.
2. Acute posterior pelviorectal PA.
3. Acute retrorectal PA.

**2.1 Complaints and medical history**

Typical complaints are discomfort and / or pain in the anus and perineum, which increases with the

progression of the inflammatory process, the presence of swelling in the soft tissues of the perianal area, perineum or gluteal area, difficult defecating and / or urinating, local increase in skin temperature in the inflammation area, and possibly pain in the lower abdomen [1,9,10].

There is a possible history of the disease:

- Weakened immune system due to concomitant acute or chronic infection
- Hypothermia
- Vascular changes due to diabetes mellitus
- Gastrointestinal disorders (constipation and/or diarrhea)
- Cryptitis
- Anal fissure
- Primary or secondary immunodeficiency conditions (HIV)
- Previous anorectal or perineal surgery.

## 2.2 Physical examination

- It is **recommended** that patients with suspected PA undergo examination and palpation of the perianal, sacrococcygeal, and gluteal areas, as well as rectal digital examination [1, 19–21].

**Category of recommendations — C (Level of evidence — 5).**

**Comment.** *Clinical and digital examination of the rectum is performed on a gynecological chair in the position for lithotomy or in the knee-elbow position. A standard clinical examination includes an examination of the perineum and anus, which assesses the severity and prevalence of the inflammation. With a standard digital examination, it is possible to determine: — localization of the inflamed crypt (wall soreness) on the infiltration side; — bulging of the rectal wall, pain, smoothness of the rectal folds on the affected side; — with retrorectal PA, there is a bulge in the area of the posterior wall of the rectum, as well as increased pain when pressure is applied to the coccyx; — with pelviorectal PA — soreness of one of the walls of the rectum, infiltration of the intestinal wall or dense infiltration beyond it.*

*In later stages, thickening of the intestinal wall is determined, its displacement from the outside, then bulging into the lumen of an elastic, sometimes*

*fluctuating, formation over which the intestinal mucosa can remain mobile. When inflammation spreads to the prostate gland and urethra, palpation of the rectal wall causes a painful urge to urinate [1,20].*

## 2.3 Laboratory diagnostic tests

There is no specific laboratory diagnosis of PA. Laboratory diagnostic tests should be performed in patients during the diagnosis and treatment of PA to exclude concomitant diseases and conditions. In a general blood test, with an extensive inflammatory lesion, leukocytosis can be detected.

## 2.4 Instrumental diagnostic tests

In most cases, no instrumental diagnosis is required to diagnose PA.

- It is **recommended** to make transanal ultrasound, or perianal ultrasound in case of unclear and atypical clinical picture, and the absence of clear margins for the spread of the inflammatory process [21–27].

**Category of recommendations — C (Level of evidence — 5).**

**Comment.** *Transanal ultrasound should be performed to assess the site and size of the purulent cavity, the degree of involvement of the rectal wall and the anal sphincter in the inflammatory process [24–27]. The informative value of ultrasound examination reaches 90% [24].*

- Transanal ultrasound is **not recommended** for pediatric patients with PA due to the size discrepancy between the sensor and the anal canal [15,28].

**Category of recommendations — C (Level of evidence — 5).**

- Pelvic MRI is **recommended** in case of unclear and atypical clinical picture, the absence of clear margins of the inflammation, if extensive swelling and a high location of the abscess are suspected [24,26,27,29,30].

**Category of recommendations — B (Level of evidence — 3).**

**Comment.** *MRI provides anatomical detail and is a non-contact examination method.*

*The disadvantages of the method include the high cost, the need for an MRI specialist, and the length of the procedure.*

## 2.5 Other diagnostic tests

*Microbiological (cultural) tests of pus for aerobic and facultative anaerobic microorganisms are not mandatory, but sometimes are useful for excluding/ confirming anaerobic or other specific bacterial flora. It consists in a specific detection of the microflora of a purulent focus to clarify the diagnosis and adequate antibiotics. The material should be collected in the operating theatre during the puncture of the abscess [5,31,32].*

## 3. TREATMENT, INCLUDING DRUG AND NON-DRUG THERAPY, DIET THERAPY, PAIN RELIEF, MEDICAL INDICATIONS AND CONTRAINDICATIONS TO THE USE OF TREATMENT METHODS

### 3.1 General principles of PA treatment

The method of choice for PA is surgery.

The procedure should be performed within the few hours after the diagnosis is verified.

**The aim of the surgery** is to open and drain the abscess, search for and, if possible, eliminate the affected crypt and fistula track [1,33–40].

Indication for hospitalization is a verified diagnosis of PA [3,10].

The type of procedure depends on the location of the abscess and the prevalence of the inflammatory infiltration in the adjacent tissues [1,33–38].

In infants, the possibility of conservative treatment of subcutaneous PA is considered. PA incision should be performed if the abscess is likely to spread [41–45].

Antibiotic therapy (systemic antibacterial drugs) is **recommended** in the perioperative period in case of significant extent of the inflammatory process, sepsis, immunodeficiency status and diseases [46–50].

**For adults: Category of recommendations — B (Level of evidence — 1).**

**For children: Category of recommendations — C (Level of evidence — 4).**

### 3.2 Opening of purulent PA

- It is **recommended** in all patients with diagnosed PA to incise and drain the abscess to prevent the development of purulent-septic complications [16,51–53].

**Category of recommendations — A (Level of evidence — 2).**

**Comment.** *If affected crypt is not identified clearly, the procedure should be limited to open and drain the abscess.*

#### **Incision and drainage of subcutaneous and ischioanal PA**

*Technique: a semilunar incision is made on the side of the lesion, in the central part of the abscess, dissecting the skin and subcutaneous tissue. Drainage of the abscess is performed in such a way that there is no pouch in the depth of the wound, and the outflow is sufficient. For this purpose, the wound should be made wider and drained.*

#### **Incision and drainage of pelviorectal PA**

*Technique: a semilunar incision on the side of the lesion, at least 3 cm aside the anus, dissect the skin, subcutaneous and ischioanal tissue. A longitudinal incision is made into the muscle tissue of the pelvic diaphragm. This manipulation should be performed under visual control. If it cannot be performed under visual control, delamination of the muscle can be carried out in a blunt way — with a finger, clamp branches or a cornucopia. Drainage of the abscess should be performed in such a way that there is no pouch in the depth of the wound, and the outflow is sufficient.*

#### **Incision and drainage of retrorectal PA**

*Indications: abscesses localized in the retro-rectal area. Technique: a skin incision is made in the middle between the projection of the tip of the coccyx and the posterior edge of the anus, up to 5 cm long. After evacuation of pus, the wound is treated with antiseptic solutions. The edge of the wound adjacent to the rectal wall should be moved away with retractor and the posterior wall of the anal canal with the sphincter should be exposed.*



**Incision and drainage of horseshoe-shaped PA**

*Technique: the extent of surgery depends on the location of the abscess in relation to the muscles of the sphincter.*

**3.3 Incision and drainage of the PA, excision of the affected crypt, elastic drainage ligature**

- For patients after PA incision and clear verification of the affected crypt with a transsphincteric (captures more than 30% of the sphincter) or extrasphincteric fistula track, in order to better drain and wound healing, to prevent PA recurrence and postoperative complications, as well as to prepare for radical surgery to excise the affected crypt set seton [7,8,39,52,53].

**Category of recommendations — C (Level of evidence — 5).**

*Comment. Technique: a wide semilunar incision of the skin is made on the affected side, then after evacuation of pus and detection of a fistula track, the incision is extended to the midline. A fringing incision is made from the intestinal lumen around the affected crypt with its continuation along the entire length of the anal canal to the junction with the angle of the perineal wound. The lining of the anal canal and the perianal skin are excised with a narrow strip. An elastic seton is carried out through the hole at the site of the removed crypt, one end of which is removed from the wound of the perineum along the midline, and the second through the inner hole in the intestinal lumen.*

*The ends of the drain are connected to each other and fixed with a ligature. At the same time, the drainage should not compress and penetrate the involved tissues. The elastic seton should not be removed until a consolidated fistula is formed [52,53].*

**3.4 Radical surgery for PA**

- It is **recommended** in all patients to perform radical excision of the fistula track into the lumen after PA incision, with a clear verification of the affected crypt with an intrasphincteric or transsphincteric location of the fistula track (with less than 30% of the portion of the external sphincter) [52, 53–56].

**Category of recommendations — A (Level of evidence — 2).**

*Comment. Technique: the anal canal is inspected in order to find the affected crypt of the internal fistula. For a clear visualization of the purulent cavity and detection of the affected crypt, a test with dye is used. To clarify the location of the track relative to the fibers of the sphincter, a button probe should be used. After that, a wide semilunar incision of the skin is made on the side of the lesion, and then the fistula track is dissected into the anal canal lumen, the affected anal crypt is excised. The risk of PA recurrence reduces to 6% [53].*

**3.5 Treatment of PA in neutropenia**

Neutropenia significantly changes the clinic and the manifestation of infectious processes. The formation of abscesses in case of neutropenia is rare, and changes in tissues are more often infiltrative with necrosis [57–61]. PA, which develops on the background of granulocytopenia, is a severe complication, which is associated with a high risk of sepsis (30%) in conditions of immunosuppression [60,61].

- It is **recommended** to choose empirical antibiotic therapy to all patients with PA and neutropenia, which makes it possible to stop the progression of anorectal infection and the development of sepsis [47,58,59].

**Category of recommendations — C (Level of evidence — 4).**

*Comment. It is advisable to use antibiotics at the first stage (J01: Antibacterial drugs of systemic action) that are active against Gram-negative bacteria, including Pseudomonas aeruginosa. The administration of antibiotics (J01: Systemic antibacterial drugs) is intravenous only [51].*

- Incision and drainage of PA is **recommended** in all patients with neutropenia with confirmed abscess or tissue necrosis [57–63].

**Category of recommendations — C (Level of evidence — 4).**

*Comment. Surgery should be performed against the background of antibacterial therapy under general anesthesia. Antibacterial therapy should be*

*continued in the postoperative period until the signs of infection disappear [59].*

*Patients with severe neutropenia (with an absolute neutrophil count of less than  $1000 \times 10^9/L$ ) and the absence of an abscess in the tissues are treated more successfully only with the use of antibacterial therapy [57,58,62]. The prognosis depends on the clinical situation. The mortality rate directly related to perianal infectious complications, among onco-hematology patients in modern studies is less than 5% [57–60].*

#### **4. MEDICAL REHABILITATION AND SPA TREATMENT, MEDICAL INDICATIONS AND CONTRAINDICATIONS TO THE USE OF REHABILITATION METHODS, INCLUDING THOSE BASED ON THE USE OF NATURAL HEALING FACTORS**

It is **recommended** that all patients who have undergone surgery for PA regular antiseptic solutions use in wound and applying ointments with anti-inflammatory and wound-healing agents until epithelialization. The daily control is required to prevent early adhesion/healing of the skin edges of the wound while maintaining the inflammatory process in the underlying tissues [14,51].

**Category of recommendations — B (Level of evidence — 2).**

After discharge from the hospital, it is advisable for all patients to be under the supervision of a coloproctologist or a surgeon, or a pediatric surgeon for the period of wound healing.

#### **5. PREVENTION AND FOLLOW-UP, MEDICAL INDICATIONS AND CONTRAINDICATIONS TO THE USE OF PREVENTIVE METHODS**

There is no specific prevention of PA. Prevention of PA consists mainly in general measures aimed at eliminating the etiological factors of the disease:

- 1) treatment and sanitation of foci of acute and chronic infection;
- 2) correction of chronic diseases — diabetes mellitus, atherosclerosis;

- 3) correction of functional disorders (constipation, diarrhea);
- 4) timely treatment of concomitant proctological diseases (hemorrhoids, anal fissures, cryptitis, etc.).

#### **6. ORGANIZATION OF MEDICAL CARE**

Medical care, with the exception of medical care within the framework of clinical testing, in accordance with Federal Law No. 323-FZ dated 21.11.2011 (ed. dated 28.12.2022) “On the Fundamentals of Public Health Protection in the Russian Federation”, Decree of the Government of the Russian Federation dated 17.11.2021 No. 1968 “On Approval of the Rules for the Phased Transition of Medical Organizations to Medical Care Based on Clinical Recommendations Developed and Approved in accordance with Parts 3, 4, 6–9 and 11 of Article 37 of the Federal Law “On the Fundamentals of Public Health Protection in the Russian Federation” is organized and provided:

- 1) In accordance with the regulations on the organization of medical care by type of medical care, which is approved by the authorized federal executive authority;
- 2) In accordance with the procedures for providing assistance in the field of “coloproctology”, mandatory for all medical organizations in the territory of the Russian Federation.;
- 3) Based on current clinical guidelines;
- 4) Taking into account the standards of medical care approved by the authorized federal executive authority.

Hospitalization of patients with PA is carried out on an emergency basis in order to perform surgery within the coming hours after the diagnosis verification. The treatment of patients in this category is carried out in a specialized coloproctological hospital, in the absence of one — in a surgical hospital. With subcutaneous and submucosal localization of the abscess, treatment can be carried out in a day, round-the-clock hospital, as well as in a short-term hospital. Treatment in a day and a short-term hospital is possible in the absence

of signs of general intoxication, the absence of signs of decompensation of concomitant diseases, as well as evidence for the presence of PA on the background of neutropenia and verified Crohn's disease. Medical care for PA patients is provided by coloproctologists, and in the absence of such doctors, by surgeons or pediatric surgeons.

#### **Indication for hospitalization:**

- Confirmed diagnosis of PA.

#### **Indications for patient discharge:**

- With sustained improvement, when the patient can continue treatment on an outpatient basis without harming his health under the supervision of a coloproctologist or a surgeon, or a pediatric surgeon
- In the absence of indications for further treatment in the hospital

- If it is necessary to transfer the patient to another medical institution
- At the request of the patient or his legal representative
- In cases of non-compliance by the patient with the prescriptions or internal regulations of the hospital if this does not endanger the patient's life and the health of the others.

### **7. ADDITIONAL INFORMATION (INCLUDING FACTORS AFFECTING THE OUTCOME OF THE DISEASE OR CONDITION)**

Negatively affect the outcome of treatment:

1. The addition of infectious complications.
2. Stool disorders (diarrhea or constipation).
3. The patient's failure to comply with restrictions on physical activity.

### **CRITERIA FOR ASSESSING THE QUALITY OF MEDICAL CARE**

#### **Criteria for assessing the quality of primary health care for adults with PA**

| №  | Quality assessment criteria  | Assessment of performance |
|----|--|---------------------------|
| 1. | An appointment (examination, consultation) with a coloproctologist/surgeon was performed     | Yes/No                    |
| 2. | A visual control for pathology of the sigmoid and rectum was performed (at diagnostic stage) | Yes/No                    |
| 3. | Transanal digital examination of the rectum was performed                                    | Yes/No                    |

#### **Criteria for assessing the quality of specialized medical care for adults with PA**

| №  | Quality assessment criteria  | Assessment of performance |
|----|--|---------------------------|
| 1. | An appointment (examination, consultation) with a coloproctologist was performed   | Yes/No                    |
| 2. | Transanaldigital examination was performed (at diagnosis)  | Yes/No                    |
| 3. | An incision of PA was performed  | Yes/No                    |
| 4. | An incision and drainage of PA (with neutropenia and confirmed abscess or necrosis) was performed                        | Yes/No                    |
| 5. | Bandages were changed at least once a day in the postoperative period before discharge from the hospital (after surgery) | Yes/No                    |

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