

Diagnosis and Treatment of Purulent Inflammatory Skin Diseases in Children

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Annotation: The paper summarizes the general principles and standardized diagnostic clinical symptoms of inflammatory skin diseases. A general concept of purulent skin diseases in children. Describes the clinical features, diagnosis and differential diagnosis of purulent skin diseases in children. Unsubstantiated diagnostic and therapeutic strategy.

Keywords: purulent diseases, felon, abscess, boil, abscess, sepsis, children.

Relevance the topic. Thanks to targeted preventive and anti-epidemic measures, the Republic has achieved a significant reduction in many infectious diseases, including pustular skin diseases. In this regard, the fight against pustular skin diseases, which account for more than 1/3 of all dermatoses and are often the cause of cosmetic defects in the younger generation and temporary disability, is of great importance [1-3].

Pustular skin diseases in children are encountered not only by dermatologists, but also by general practitioners, infectious disease specialists, pediatricians, pediatric surgeons.

Pustular skin diseases are an inflammatory process caused by pyogenic microflora, accompanied by both local and general reactions with different localization and character. In its development, an important role is played by the immunobiological state of the patient and the virulence of microorganisms. There are no specific pathogens of purulent infection in nature. Under certain conditions, any microorganism that vegetates in the body of a child can become a source of purulent infection [6].

In addition to the well-studied endotoxin, other factors are involved in the genesis of the disorders described above, including the structural components of gram-positive bacteria (peptidoglycan, teichoic acids of staphylococcus, and other bacterial modulins), as well as tissue degradation products in the focus of inflammation, microbial metabolites, etc.

Most microbes live in associations with each other (staphylococci, streptococci, E. coli, etc.) - There is an association of aerobes with anaerobes. But some microbes (*Pseudomonas aeruginosa*) are antagonists of other microorganisms. They live in an alkaline environment. Individual microorganisms have their own habitat. For example, staphylococcus often affects the subcutaneous fat, streptococcus - mucous and serous membranes, anaerobes - damaged muscle tissue, tissues with poor blood supply, meningococcus - meninges, gonococcus - genital organs [12-14].

Pyoderma in the neonatal period and infancy account for 25-60% of the total number of dermatoses. So, according to the Clinic of Dermatology of the St. Petersburg Institute, among newborns, staphylo-derma was detected in 30% with lesions of the umbilical wound, in 325 - miliaria, in 1 - 22% of diaper rash of varying degrees, in 12% - purulent conjunctivitis [4].

At the site of the introduction of microbes into the body, as a rule, a local inflammatory reaction develops. The nature of the inflammatory exudate depends on the type of microorganism. With staphylococcal infection - yellowish pus, thick, with fibrin.

With streptococcal infection - white or pinkish pus (hemolytic streptococcus) liquid without fibrin. With *Pseudomonas aeruginosa* infection - blue-green pus. With colibacillary infection - pus with a brownish and grayish tinge with an unpleasant odor. With anaerobic infection, the exudate is liquid, cloudy, in a small amount, there may be gas bubbles [5].

The entrance gate of infection can be an umbilical wound, skin, mucous membranes. There are two ways of occurrence and development of the inflammatory process: endogenous (the disease is the result of autoinfection of a sensitized organism) and exogenous (the pathogen enters the body from outside).

Most often, microbes enter the body through damaged skin and mucous membranes - by airborne droplets, contact and implantation [7]. It is possible that there is some kind of cyclicity of external natural factors that have an impact both on the protective capabilities of microorganisms and on the pathogenicity of the microbial flora.

The basis of unsatisfactory results of treatment, as a rule, may be late diagnosis and, as a result, inadequate treatment. The initial link in this process is the contamination (contamination) of the child's body with microbial flora, which still occurs antenatally, but much more often intra- and postnatally [8-10].

Despite the significant achievements of modern medicine, the problem of combating pustular skin infection remains relevant, since the proportion of patients with purulent-inflammatory skin diseases in children's hospitals is still high. At present, the number of complications in purulent diseases of the skin and soft tissues has practically not changed over the past years [11].

The purpose of the work is to study the etiopathogenetic features of pustular skin diseases in children in modern conditions and to evaluate the effectiveness of ongoing complex and anti-relapse measures in the fight against purulent infection.

Material and methods

The case histories of 2404 patients from 1 month to 14 years old who were treated in the purulent department of 2-HDCA in Tashkent during 2012-2017 were analyzed. in water pustular skin diseases. There were 1432 boys (59.6%) girls -972 (40.4%).

As can be seen from the table, purulent inflammation of the hair follicles predominates in the structure of the disease. The second place in the frequency of lesions of the staphylococcal process is the defeat of the deep soft tissue. Third - infection of the subcutaneous adipose tissue of phlegmon, paraproctitis. In most children, the inflammatory process was detected in the serous-infiltrative and purulent-necrotic phases. Only 112 (4.6%) patients were admitted to the clinic in the resorption phase.

Distribution of patients depending on clinical manifestations and stages of development of pustular diseases in children for 2014-2019

№	Nosological form	Stages of the disease						Total:
		Serous-infiltrative	Resorption	purulent-necrotic	depigmented marks	Keloid scars	Relapses	
1	Furuncle	64	11	684	78	3	12	852
2	Abscesses	17	9	291	4	5	3	329
3	Phlegmon	19	8	237	12	11	2	289
4	paraproctitis	37	16	114	47	16	12	242
5	infected wounds	175	19	22	16	8	-	240
6	Panaritiums	69	19	122	7	3	4	224
7	Inflammatory infiltrate	98	25	-	-	-	-	123
8	pyoderma	27	3	8	3	5	3	49
9	Paronychia	13	2	34	1	2	4	56
	Total:	519	112	1512	168	53	40	2404

Result and discussion

Most mothers had a burdened somatic history. An analysis of the somatic health of women showed that more than half of **76% had** various extragenital pathologies, **23.4%** of them had two diseases, **19%** - three or more, **1930 (80.3%)** suffered from various acute viral diseases of the respiratory tract. Anemia was found in 72% of mothers.

The unfavorable premorbid background after the birth of a child contributed to the disruption of the processes of contamination of the subsequent colonization of microorganisms in the child's body with their subsequent generalization.

In the neonatal period, 1112 (46.2%) children received antibiotic therapy for past inflammatory diseases of the respiratory system. In 624 (25.9%) patients, various degrees of severity of intestinal dysbacteriosis were revealed.;

The onset of the disease in most patients was gradual. Only 313 (13.0%) children had an acute onset of the disease with high fever, severe hyperemia, swelling, pain in this area; in 37 with a furuncle of the face with reactive edema in the paraorbital region.

A similar onset is more typical for children of early and preschool age. Intoxication in the form of weight loss, tearfulness, irritability, fever were observed in 61% of patients. It should be noted that in all children with pustular skin diseases, the leading symptoms of the onset of the disease were hyperemia, swelling, swelling over the epidermis, severe pain, and limited mobility in the affected area of the body. In 16 preschool children, the temperature often rose to hectic numbers, which contributed to the incorrect interpretation of the disease in the first 5 days of visiting a doctor.

Shifts in the hemogram in the form of leukocytosis, neutrophilia with a shift to the left and an increase in ESR up to 35 mm/h were registered in 1276 (53.1%) cases. The level of C-reactive protein was increased in 1128 (46.9%) patients.

To determine the causative agents of their sensitivity to antibiotics, a microbiological study was carried out: inoculation from pus and from the surface of the skin, as well as from the nasopharyngeal cavity.

A total of 436 inoculations were made, of which the growth of microorganisms was obtained in 403 (92.43%) cases. The highest rate of seeding was noted from pus (97%), isolated microorganisms - staphylococcus aureus - 67%, streptococcus - 13%, Escherichia coli - 12.5%, Proteus - 5%, Pseudomonas aeruginosa - 5.5%. Monoinfection was found in 87% of cases; polymicrobial fluoride - 13% of cases: staphylococcus in association with the intestinal shelf - 16%, staphylococcus with proteus - 6%, staphylococcus aeruginosa - 6%.

A complicated course of the inflammatory process was registered in 44 children under 3 years of age out of 114 patients with purulent-necrotic paraproctitis. With ischeorectal form of paraproctitis, skin fistulas are more often noted.

Functional insufficiency of the affected organ, due to the prevalence of the inflammatory process, was observed in 7 patients with inguinal lymphadenitis, in 3 children with hidradenitis. In 4 cases, spread of phlegmon was noted. Abscess recurrence was observed in 3 patients.

It should be noted that in 76 patients with felons, the presence of lymphadenitis of various localization was simultaneously established.

Concomitant diseases of various organs and systems were diagnosed in 741 (30.82%) patients, including 676 chronic infections of the upper respiratory tract.

In all cases, the clinic carried out complex treatment, including antibiotic therapy with 3 drugs and etiopathogenetic agents. Of the latter, in addition to general strengthening, according to indications, immunocorrective drugs were prescribed according to the generally accepted scheme, as well as antioxidants and physiotherapy procedures.

Children and adolescents with phlegmon underwent antibiotic-novocaine blockades within healthy soft tissue. Adverse reactions to injections with antibiotics were not noted.

With a single boil, attention was focused on local therapy. With incipient complications, a two-three-time injection of a boil with a solution of antibiotics in novocaine (daily dose) is very successful, at which anesthesia occurs.

Abscesses were opened under general anesthesia. A small incision was made, followed by scraping the pyogenic capsule with a sharp Volkmann spoon. An open wound was then treated according to the general rules.

Paraproctitis in our observations in 96% of cases was in the form of a subcutaneous abscess. On a limited area of the skin near the anus, hyperemia and induration are found, which soon softens (fluctuation). Under local anesthesia, a small incision was made and the abscess was emptied.

In 213 cases, phlegmon arose primarily, in 76 cases it was superimposed on the underlying disease. Its

localization was in different parts of the body. Often phlegmon complicates the course of some localized processes (lymphadenitis, furuncle, pseudofurunculosis, omphalitis).

When phlegmon is clearly expressed: swelling, hyperemia of the skin, local fever, pain, the function of the affected part of the body is impaired. The process tends to spread.

Often the tissues were subjected to purulent fusion and softening of the infiltrate appeared. The disease was accompanied by pronounced general phenomena - fever, malaise, headaches, loss of appetite, physical inactivity.

Heat is locally prescribed in the form of warming compresses, UHF, chipping of the affected surface with a solution of antibiotics. One or more parallel incisions are made, cutting through the skin and tissue. In 64 patients, pus was not extracted (streptococcal infection). The wounds are loosely plugged, a magnesian bandage is applied with a 25% solution of magnesium sulfate, which has a slight analgesic property. Under the influence of complex treatment, general and local phenomena quickly subside.

Infected wounds. The first 12 hours after the wound was applied (early period) (26 patients were admitted) are characterized mainly by the presence of a blood clot on the surface of the wound and initial reactive inflammatory phenomena in places in the fibrin clot.

192 patients were admitted on days 3-7 in the degenerative-inflammatory stage with pronounced edema of the wound edges, the formation of purulent exudate, pain, hyperemia, lymphangitis and regional lymphadenitis, purulent discharge, local and general temperature increase. Therapeutic measures should contribute to the fastest course of the natural process, therefore, when drawing up the treatment plan, the period of the wound process was taken into account and local and general measures were taken to improve the conditions for regeneration. When the active activity of microbes and the spreading of dead cells and tissues predominate, it is necessary to suppress the activity of microorganisms and promote the fastest cleansing of the wound and the resorption of inflammatory infiltrates:

- Antibacterial therapy;
- Increased hyperemia and exudation in the wound;
- Creation of a reliable outflow of wound contents;
- Peace of the diseased organ and careful attitude to tissues;
- Increasing the immune forces of the body.

When wounds were infected in 17 children with *Pseudomonas aeruginosa*, a 3% solution of boric acid was used. In order to cleanse the wound, dressings with a solution of magnesium sulfate (25%) were used. Unimpeded evacuation of exudate is achieved by drainage. We usually use thin strips of rubber from a medical glove. To reject necrotic tissues and accelerate the resorption of the infiltrate, the use of a high-frequency electric field (UHF) contributes. The procedures are carried out daily until the wound is cleansed in oligothermic and weakly thermal doses for 5-10 minutes, 8 times in total.

In the regenerative stage, when the inflammatory response subsides, the virulence of the infection weakens, and granulations develop. The fight against the causative agent of infection is no longer as important as in the previous period. To accelerate the stimulation of healing processes in the phase of the regenerative period, we used Curiosin gel. We attach great importance to a rare change of dressings (once every 3-4 days). In the complex of therapeutic measures, rapprochement of the edges of the wound with sutures can be applied. We had 62 patients put an early secondary suture on a granulating wound with movable non-fixed edges without scarring (6-8 days after treatment).

With felons in children, the infection penetrates into the tissues of the fingers and hands through abrasions, scratches, pinpoint injections, with splinters. Among the pathogens there is a diverse flora, but more often staphylococcus, streptococcus. Clinical manifestations are determined not only by the entrance gate and the virulence of the infection, but are also more associated with the complex anatomical structure of the hand. This is of particular importance in the treatment of one form or another of the inflammatory process of the fingers and hand. Inflammation of the roller surrounding the base of the nail is called paronychia. Children habitually bite their nails and tear barbs and affect the integrity of the skin, through these areas the infection penetrates into the periungual ridge. The periungual roller turns red, swelling, swelling, pain appear.

Pus gradually accumulates under the epidermis and a small whitish pustule is formed, that is, the process remains localized. Conservative treatment was carried out in 16 patients with gentamicin ointment, warm (35-40°C) baths with potassium permanganate. After 3-5 days, the process subsides. Mostly patients applied at a

later period and there was no effect of conservative therapy. Simple surgical interventions were performed. In 3 children, when the process spread under the nail bed, they approached the resection of the nail root, using anesthesia according to Lukashovich-Oberst.

Inflammation of the terminal phalanx (panaritium) according to the location of the primary focus is divided into skin, subcutaneous, under the nail, bone forms. In the cutaneous form, the process is localized in the thickness of the skin under the epidermis and shines through the surface layers of the skin in the form of a small abscess. The pain is moderate, the function of the finger is usually not impaired. Removal of exfoliated epidermis with scissors without anesthesia, as the procedure is painless. A bandage with Levomikol ointment is applied to the wound.

We observed the subcutaneous form of panaritium more often in adolescents (in 96 cases). Complained of throbbing pain in the fingertip, the intensity of which changes with the development of the process. For 3-5 days the pain reaches its maximum severity. Patients complain of a sleepless night due to sharp pains. The finger is straight, hyperemic, edematous, when palpated, pain appears. The phenomenon of fluctuation (fluctuation) is difficult to identify. It is necessary to determine local pain with a bellied probe. Conservatively, in 47 patients, antibiotics were prescribed orally. From the local heat was used in the form of hot baths for 25-30 minutes several times a day, UHF, chipping with a solution of merkacin 50-100 mg.

Surgical intervention is indicated in cases: a) when conservative treatment for 3 days without effect; b) with a late, improperly self-treated, neglected complicated condition. Under local anesthesia according to Lukashovich, a 0.5-1 cm incision was made on the palmar-lateral surface of the phalanx. After emptying the abscess, the wound was drained with a thin rubber strip moistened with erythromycin ointment. After the subsidence of acute inflammatory phenomena, thermal baths, UHF, and therapeutic exercises were prescribed.

Bone panaritium occurs as a complication of subcutaneous panaritium, due to injuries, injections, abrasions, scrapes, wounds. This form was observed in 17 patients with characteristic signs: a flask-shaped thickening of the terminal phalanx without a zone of local pain. The X-ray revealed a change in the structure of the bone. Surgical intervention is limited to the opening of soft tissues to the bone, as in subcutaneous panaritium.

The course of the process in the bone was monitored by x-rays after 8-10 days. Fixation of the finger in a splint or plaster splint. The process of bone regeneration takes 1-1.5 months. The drug Structum 250 mg and Osteogenonro 250 mg were prescribed, supplementing with DZ calcium.

As a complication of subcutaneous panaritium in 13 patients, as a result of healer's and improper treatment, tendon panaritium (synovitis, tendovaginitis) was noted in 3 patients, in which severe pain, hyperemia, and swelling were noted. If the finger is in a bent position, a sharp pain occurs during extension, especially along the tendon. General symptoms - malaise, headache, fever.

In 3 patients, a V-shaped phlegmon was noted, that is, a cross-simultaneous lesion of the synovial bags 1 and Upalydev.

Under general anesthesia, two parallel incisions 0.5-1 cm long were made along the anterolateral surface of the main phalanx. Wounds are drained with rubber strips, and through one wound the drainage is advanced upwards, and through the other downwards.

The arm is fixed with a plaster cast. To normalize the temperature, antibiotics are used intramuscularly. At the same time, thermal baths with potassium permanganate, UHF, and early therapeutic exercises are prescribed.

Pyoderma is the most commonly affected skin of the face and hands. In children's groups, the nature of endemic may be adopted. We observed pyoderma in 32 patients. On the inflamed, hyperemic skin, a vesicle appears with serous contents, in which streptococci and staphylococci were found. The lid of the bubble is thin, sluggish, less often tense. At its base there is an erythema corolla.

After opening the tire, a serous, serous-turbid liquid continues to stand out on the erosion surface for some time, shrinking into a straw-yellow "honey" crust.

In 17 patients, at first, thin, flat crusts were observed, which then become coarser, uneven, lumpy due to uneven erosion and drying of the exudate on the surface. appearance; cracks in the crusts, their fragility and brittleness. The crusts can be grayish, dirty gray, brown in color from re-contamination in blood impurities.

The disease takes on a disseminated character, accompanied by a painful enlargement of the lymph nodes, ESR, leukocytosis. With rational etiopathogenetic, hyposensitizing treatment, prognosis is favorable.

The duration of the inpatient stage of treatment was determined individually, depending on the nature of the prevalence and phase of the inflammatory process, as well as on the effectiveness of treatment. Microbiological examination is a culture from pus and rz of the skin surface, as well as from the nasopharyngeal cavity. The highest seeding rate was noted from pus (89%), from the nasopharynx of the skin, 40% and 33%, respectively. When studying the sensitivity of microbes to various antibiotics, cephalosporins of the 3rd-4th generation and aminoglycosides turned out to be the most effective. By the end of inpatient treatment, a significant clinical effect was observed in 98.6% of patients. Chronically relapsing course in the form of an undulating course with periods of remission and exacerbation, which required repeated courses of treatment - in 18fl (7.6%).

Findings

In recent years, despite the predominance of various modern spectrums of antibiotics, in the structure of gaundice skin diseases in children and adolescents, there has been an increase in necrotic forms of the disease.

2. Rational treatment of pustular diseases in the stage of purulent-necrotic course, including the optimal combination of antibiotics and pathogenic agents, contributes to the clinical cure at the stationary stage of 98.6% of children and adolescents. 2/3 (65%) of isolated microorganisms were staphylococcus aureus, streptococcus - 12%, E. coli - 11.5%, Pseudomonas aeruginosa - 4.5%, proteus - 4%, enterococcus - 3%.

3. Monoinfection appeared in 89% of cases, polymicrobial flora - 11% of cases.

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