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Diagnosis and treatment of juvenile cellulitis in an English Cocker Spaniel puppy

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Abstract

Introduction. Juvenile sterile granulomatous dermatitis and lymphadenitis (JSGDL), also known as juvenile cellulitis, is a rare but severe immune-mediated skin disease of puppies. Despite its characteristic clinical presentation, the disease poses a diagnostic and therapeutic challenge. Difficulties arise both at the early stages of differential diagnosis with angioneurotic edema, deep pyoderma, or demodicosis, and during the treatment process. High doses of glucocorticosteroids (GCS), which are the mainstay of therapy, do not always lead to rapid resolution of the process and carry the risk of secondary infections, while also raising the question of the safety of routine vaccination. The prolonged course of the disease and the formation of cosmetic defects, such as scars and skin hyperplasia, significantly reduce the patient's quality of life and necessitate the development of clear protocols for the management of such animals, which underscores the relevance of analyzing each clinical case. According to the literature, JSGDL affects puppies between 3 weeks and 4 months of age, with a predisposition in breeds such as the Golden Retriever, Dachshund, and English Cocker Spaniel. The etiology of the disease remains unknown, but a hereditary nature of immune dysfunction is suspected. Classic signs include acute facial edema followed by the formation of papules, pustules, and lymphadenopathy. The standard of treatment is immunosuppressive therapy with prednisolone. However, current research points to the possibility of a protracted course, the development of resistance to GCS monotherapy, and the need for combination regimens, for example with cyclosporine, in complex cases. A number of authors emphasize the importance of cytological monitoring for the timely detection of secondary bacterial infection, as well as the need for a cautious approach to vaccination during immunosuppression, in accordance with WSAVA guidelines.

Case presentation. This report describes a clinical case with an atypically prolonged course lasting 13 weeks, which allowed us to demonstrate the limits of the effectiveness of standard prednisolone therapy and the stages of secondary infection acquisition. The practical significance lies in illustrating the need for regular cytological monitoring for timely therapy adjustment, as well as in discussing the complex choice of vaccination strategy in puppies receiving immunosuppressive therapy.

Discussion. The subject of the study was a 2-month-old male English Cocker Spaniel puppy at the time of initial presentation. The diagnosis was established comprehensively based on history and clinical findings: acute onset of the disease, the classic triad of symptoms (acute edema and erythema of the face, including the lips and eyelids), the presence of papulopustular eruptions, pronounced bilateral lymphadenopathy (submandibular and parotid lymph nodes), and concurrent otitis externa. The methods used included clinical examination, otoscopy, cytological analysis of skin and ear canal impression smears, as well as analysis of the patient's clinical dynamics during therapy.

Conclusion. The materials of this article can be used by practicing veterinarians to optimize the diagnostic and therapeutic process for this disease. When juvenile cellulitis is suspected, comprehensive diagnostics should be performed, including cytological examination of pustule contents and ear canal smears to rule out an infectious etiology and monitor for possible secondary infection at all stages of treatment. Immunosuppressive therapy with prednisolone at a dose of 2 mg/kg should be initiated immediately upon diagnosis, as a delay in starting treatment may contribute to a protracted disease course. The GCS dose should be adjusted at each visit, taking into account the puppy's rapid weight gain. If no positive dynamics are observed within 2–4 weeks, or if relapse occurs, the addition of cyclosporine or a change of the GCS preparation should be considered. Systemic antibiotic therapy should be prescribed only when secondary infection is cytologically confirmed. To minimize scarring and skin hyperplasia, early and aggressive initiation of anti-inflammatory GCS therapy is critical. Regarding vaccination, it is recommended to follow WSAVA guidelines: vaccinate only after the patient's condition has stabilized or immunosuppressive therapy has been completely withdrawn, giving preference to inactivated vaccines and minimizing the patient's exposure to infection during the treatment period.

Keywords: juvenile cellulitis, immunosuppression, vaccination, glucocorticoids, scars

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Диагностика и лечение ювенильного целлюлита щенка английского кокер спаниеля

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Аннотация

Введение. Ювенильный стерильный гранулематозный дерматит и лимфаденит (JSGLD), также обозначаемый как ювенильный целлюлит, представляет собой редкое, но тяжелое иммуноопосредованное заболевание кожи у щенков. Несмотря на достаточно характерную клиническую картину, данная патология остается значимой диагностической и терапевтической проблемой. Трудности возникают как на ранних этапах дифференциальной диагностики с ангионевротическим отеком, глубокой пиодермой или демодекозом, так и в ходе последующего лечения. Высокие дозы глюкокортикостероидов (ГКС), составляющие основу терапии, не всегда обеспечивают быстрое разрешение патологического процесса и одновременно повышают риск развития вторичных инфекций, а также требуют оценки безопасности проведения плановой вакцинации. Длительное течение заболевания и формирование косметических дефектов, включая рубцовые изменения и гиперплазию кожи, существенно снижают качество жизни пациента и обуславливают необходимость разработки четких протоколов ведения таких животных, что подтверждает актуальность анализа каждого клинического случая. Согласно данным литературы, JSGLD поражает щенков в возрасте от 3 недель до 4 месяцев; породная предрасположенность описана у золотистых ретриверов, такс и английских кокер-спаниелей. Этиология заболевания остается неустановленной, однако предполагается наследственно обусловленный характер иммунной дисфункции. Классическими клиническими признаками являются острый отек морды с последующим образованием папул, пустул и развитием лимфаденопатии. Стандартом лечения считается иммуносупрессивная терапия преднизолоном. Вместе с тем современные исследования указывают на возможность затяжного течения, формирования резистентности к монотерапии ГКС и необходимость применения комбинированных схем, например, с циклоспорином, в осложненных случаях. Ряд авторов подчеркивают значимость цитологического контроля для своевременного выявления вторичной бактериальной инфекции, а также необходимость осторожного подхода к вакцинации на фоне иммуносупрессии согласно рекомендациям WSAVA.

Представлено описание клинического случая с атипично затяжным течением продолжительностью 13 недель, что позволило продемонстрировать пределы эффективности стандартной терапии преднизолоном и этапы присоединения вторичной микрофлоры. Практическая значимость работы заключается в иллюстрации необходимости регулярного цитологического мониторинга для своевременной коррекции лечебной тактики, а также в обсуждении сложного выбора стратегии вакцинации у щенков, получающих иммуносупрессивную терапию.

Обсуждение. Объектом исследования являлся щенок мужского пола породы английский кокер-спаниель в возрасте 2 месяцев на момент первичного обращения. Диагноз был установлен комплексно на основании данных анамнеза и клинической картины: острого дебюта заболевания, классической триады симптомов, включающей выраженный отек и эритему морды, в том числе губ и век, наличия папулопустулезных высыпаний, выраженной двусторонней лимфаденопатии с вовлечением подчелюстных и околоушных лимфатических узлов, а также сопутствующего наружного отита. В работе применялись методы клинического осмотра, отоскопии, цитологического анализа мазков-отпечатков с кожи и из ушных раковин, а также оценка динамики состояния пациента на фоне проводимой терапии.

Заключение. Материалы статьи могут быть использованы практикующими ветеринарными врачами для оптимизации диагностического и лечебного процесса при данном заболевании. При подозрении на ювенильный целлюлит необходимо проводить комплексную диагностику, включающую цитологическое исследование содержимого пустул и мазков из ушных раковин, с целью исключения инфекционной природы поражений и мониторинга возможного вторичного инфицирования на всех этапах лечения. Иммуносупрессивную терапию преднизолоном в дозе 2 мг/кг следует начинать незамедлительно после постановки диагноза, поскольку отсрочка лечения может способствовать затяжному течению заболевания. Дозу ГКС необходимо корректировать на каждом приеме с учетом быстрого увеличения массы тела щенка. При отсутствии положительной динамики в течение 2–4 недель или развитии рецидива следует рассматривать вопрос о добавлении циклоспорина либо замене препарата из группы ГКС. Системную антибиотикотерапию следует назначать только при цитологическом подтверждении вторичной инфекции. Для минимизации рубцевания и гиперплазии кожи критически важно раннее и интенсивное начало противовоспалительной терапии ГКС. В отношении вакцинации

рекомендуется придерживаться указаний WSAVA: проводить ее только после стабилизации состояния или полной отмены иммуносупрессивной терапии, отдавая предпочтение инактивированным вакцинам и минимизируя риски инфицирования пациента в период лечения.

Ключевые слова: ювенильный целлюлит, иммуносупрессия, вакцинация, глюкокортикостероиды, рубцы

Для цитирования. Ким Л.Е. Диагностика и лечение ювенильного целлюлита щенка английского коккер спаниеля. *Ветеринарные клинические случаи.* 2026;1(1):53–61.

Introduction. Juvenile sterile granulomatous dermatitis and lymphadenitis (JSGDL) is a rare immune—mediated disease of unknown etiology that mainly affects puppies aged 3 weeks to 4 months. The literature also contains descriptions of cases of this pathology in older dogs with typical clinical manifestations and characteristic diagnostic findings [1]. The disease is registered in representatives of many breeds; a probable breed predisposition has been noted in golden retrievers, dachshunds, Gordon setters, English Cocker Spaniels and Labrador retrievers [2]. No sexual predisposition has been identified. A possible hereditary component is confirmed by the increased frequency of the disease in certain breed groups, as well as the presence of a family history [3].

Sterile granulomas and pustules that respond rapidly to glucocorticosteroid (GCS) therapy, especially prednisone, indicate immune dysfunction underlying the pathological process [3]. The classic clinical signs are acute swelling of the muzzle, mainly of the lips, nose and eyelids, which develops within 24–48 hours; rapidly progressing papules and pustules form against the background of edema. Lesions are most often localized on the lips, muzzle, chin, bridge of the nose and in the periorbital regions; bilateral otitis externa and lymphadenopathy often develop. Puppies often have concomitant sterile purulent-granulomatous panniculitis with dense or fluctuating subcutaneous nodules, which are often painful or prone to fistula formation. Less often, such elements are detected on the trunk, in the preputial or perianal areas. The affected skin is usually painful, but it is not accompanied by severe itching; itching may occur when a secondary infection is present. In some dogs, lethargy and depression are noted [3].

Systemic manifestations are possible — fever and lameness caused by arthritis; in one case, paresis associated with sterile inflammation of the spinal cord was described [2].

Immunosuppressive therapy with GCS, in particular prednisone, is widely used in veterinary practice in the treatment of allergic, autoimmune and inflammatory diseases in dogs, including juvenile cellulitis. However, its use is associated with the risk of inhibiting the immune response, which raises reasonable doubts about the safety and effectiveness of routine vaccination of puppies during treatment.

The mechanism of action of prednisone on the puppy's immune system:

- reduces lymphocyte production and immunoglobulin synthesis;
- inhibits the function of monocytes and macrophages, which impairs immunocompetence;
- increases the content of neutrophils and causes eosinopenia — these effects are mainly associated with impaired cell migration [4].

The presented clinical case describes a puppy of a typical breed and age group. Despite the characteristic rapid response to GCS, in this case the disease had a prolonged course, accompanied by the addition of a secondary infection and the formation of pronounced cosmetic defects. In addition, the treatment period coincided with the scheduled vaccination period. Taking into account the increased risk of viral infections during frequent visits to the clinic and against the background of immunosuppression, it is necessary to carefully assess the ratio of risks and potential vaccination strategies in such clinical settings.

The scientific novelty of the work lies not only in describing the fact of a prolonged course of the disease, but also in demonstrating the dynamics of cytological changes in the process of prolonged immunosuppression. This makes it possible to clarify the pathomorphological features of the disease and expand the understanding of the boundaries of the therapeutic window of prednisone.

The purpose of this work is a detailed analysis of a clinical case of juvenile cellulite in an English Cocker Spaniel puppy, complicated by a prolonged course and secondary infection, in order to optimize the management of such patients, evaluate the effectiveness of step-by-step therapy, and discuss controversial issues related to scarring prevention and vaccine status assessment.

Materials and methods. The object of the study is a male English Cocker Spaniel puppy at the age of 2 months at the time of initial treatment. The diagnosis was established comprehensively based on the following data: anamnesis and clinical picture: acute onset of the disease, the classic triad of symptoms — acute edema and erythema of the muzzle, including lips and eyelids, the presence of papulopustular rashes, pronounced bilateral lymphadenopathy — submandibular and parotid lymph nodes, as well as concomitant otitis externa. Differential diagnosis: to exclude parasitic infestations — demodicosis and sarcoptosis — deep and superficial skin scrapings were performed, and a negative result was obtained. Cytological confirmation: the collection of material for cytological examination was performed — smear prints from the skin of the affected areas and from the external auditory canals. The cytological picture confirmed the

diagnosis, revealing signs of sterile pyogranulomatous inflammation characterized by the presence of a large number of macrophages, neutrophils and giant multinucleated cells in the absence of bacteria at the start of therapy.

Clinical case description. An English Cocker Spaniel puppy at the age of 2 months, male; feeding — industrial food; no vaccination was carried out. Six days before the treatment, symmetrical swelling of the facial area appeared: nose, bridge of nose and eyelids, accompanied by bilateral otitis externa. Skin manifestations progressed with the formation of papules and pustules, after which fistulas formed. The general condition remained satisfactory; the intensity of itching in the ears and muzzle was estimated at 3-4 points according to the PVAS — visual analog scale for itching assessment [3]. A single injection of prednisolone at a dose of 2 mg/kg was performed in an outside clinic; positive dynamics was noted during treatment, but after 2 days the symptoms recurred.



Fig. 1. Manifestations of juvenile cellulite on the back of the nose, lips, periorbital area, eyelids



Fig. 2. Manifestations of juvenile cellulite on the periorbital area, eyelids

The initial clinical examination of the patient revealed pronounced dense edema, papular-pustular rashes, abundant exudation and the formation of crusts. Palpation of the skin in the muzzle area is accompanied by significant soreness (Fig. 1–3). During the otoscopic examination, swelling of the auricles, the presence of pronounced exudate and soreness on palpation were recorded; at the same time, the vertical and horizontal sections of the auditory canals, as well as the eardrum, were within the physiological norm (Fig. 4). During physical examination, the submandibular lymph nodes enlarged to 3 cm are palpated, characterized by immobility and lack of soreness; other peripheral lymph nodes were not visualized and were not palpated.

Diagnostic measures carried out:

- deep skin scraping — negative result;
- cytological examination: a significant number of non-degenerative neutrophils and single macrophages were found in the material obtained by fine needle biopsy from the pustular element. Pathogenic bacterial and fungal microorganisms have not been identified. The described cytological picture is pathognomonic for a sterile pyogranulomatous inflammatory process;
- cytological analysis of exudate from the auricles: degenerative neutrophils were detected in the absence of signs of bacterial or fungal microflora.



Fig. 3. The manifestation of juvenile cellulite on the back of the nose, lips, flaps

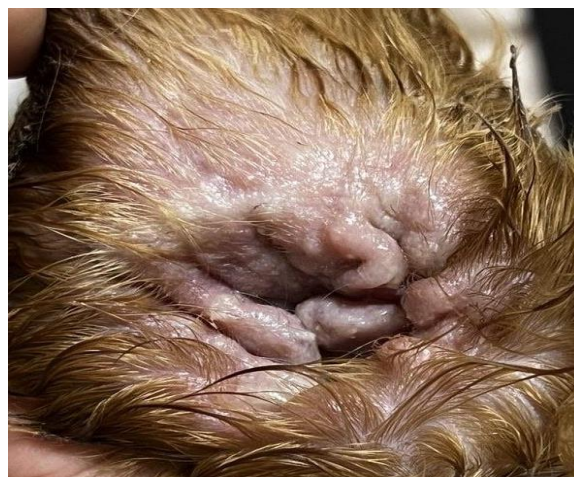


Fig. 4. Manifestations of juvenile cellulite, otitis externa

Histological examination of the skin was not performed due to the characteristic clinical case and age of the patient. The final diagnosis was verified comprehensively based on anamnesis data, typical clinical manifestations, and the results of additional diagnostic measures: microscopy of scrapings, cytological examination, and otoscopy.

Differential diagnosis:

- angioedema. Differentiation should be carried out mainly in the early stages of the disease, when only edema is clinically manifested — with the subsequent formation of papules, pustules, fistulous passages or lymphadenopathy, this pathology is excluded;

- deep pyoderma and panniculitis. Secondary skin lesions characteristic of deep pyoderma (hemorrhagic crusts, purulent exudation, fistulae, ulcerative defects, nodules, and indistinctly pronounced pasty) [5] are similar to the symptoms of juvenile cellulite. To verify the diagnosis, cytological analysis is necessary; the criterion for confirmation is the detection of freely located microorganisms (cocci, rods) or signs of phagocytosis [5]. In the uncomplicated course of juvenile cellulite, inflammation is sterile, but bacterial infection can occur at later stages [3];

- uvenile generalized demodicosis. The need for exclusion is caused by the overlapping age range of the manifestation of both conditions — the typical age for juvenile demodicosis is up to 1 year. In severe cases of invasion, along with multiple foci of alopecia, papulo-pustular elements may develop [6], which brings the clinical picture closer to juvenile cellulite. In the absence of secondary infection, both pathologies occur without marked itching;

- reaction to medications [3]. It manifests itself as an undesirable effect that occurs with the therapeutic use of medications or their combinations, as well as with the irrational use of drugs, which is mainly expressed by dermatological symptoms. It is necessary to differentiate this condition if there is anamnestic information about the use of pharmacological agents.

Treatment. The patient was prescribed prednisone at a dosage of 2 mg/ kg once a day [3]. Given the absence of secondary microflora according to the results of primary cytology, it was decided to refrain from prescribing antibacterial therapy. In order to prevent septic complications, topical treatment was used — 4% chlorhexidine solution 2 times a day. After 2 weeks, a weak positive trend was recorded: puffiness decreased, but exudation in the muzzle and auricles persisted. Taking into account the intensive growth of the puppy and the nature of the changes, it was decided to monitor the condition and adjust appointments once a week. The procedure included examination, weighing and cytological examination of smears-prints from the ear canals, from under the crusts and pustules. The prednisone dosage was adjusted to reflect the actual body weight at each visit. After 4 weeks, secondary infection was noted. Cytology of smears from auricles, pustules and from under exudative crusts revealed the presence of a large number of coccoid flora and phagocytosis phenomena. The course of juvenile cellulite was complicated by deep pyoderma (Fig. 5) and bilateral bacterial otitis externa (Fig. 6).



Fig. 5. Deep pyoderma in juvenile cellulite



Fig. 6. Bacterial otitis externa in juvenile cellulite

After that the patient was prescribed amoxicillin potentiated with clavulanic acid at a dose of 22 mg/kg every 12 hours for a course of 4 weeks [4]. For the treatment of otitis media, “Isotic” drops (hydrocortisone aceponate, gentamicin, miconazole) were used once a day for 3 weeks. Gentamicin, which is part of this drug, belongs to the first-line agents for the treatment of acute bacterial otitis associated with coccoid microflora [3]; hydrocortisone aceponate provides pronounced anti-inflammatory and analgesic effects [3].

A subsequent follow-up examination after 10 weeks showed a decrease in edema and exudation, as well as an improvement in the condition of the auricles; submandibular lymph nodes on palpation corresponded to the physiological

norm. In order to monitor bacterial otitis media and pyoderma, cytological examination was performed every 2 weeks. Bacterial otitis media was stopped after 3 weeks, and pyoderma was resolved after 4 weeks. However, scarring and skin hyperplasia began to form in the area of the nasal bridge.

Against the background of positive clinical dynamics, gradual withdrawal of prednisone was initiated on the 10th week of therapy. The use of glucocorticoids for more than two weeks requires a gradual dose reduction, since abrupt discontinuation can lead to the development of acute adrenal insufficiency [4]. The prednisone dose was reduced to 1 mg/kg once every 24 hours; a week later, to 0.5 mg/kg once every 48 hours; a week later, the drug was completely discontinued.

The total duration of treatment was 13 weeks, which corresponds to a prolonged course of the disease, since the average duration of therapy usually varies between 4-8 weeks. To correct scarring and hyperproliferation of the skin, a topical preparation containing hydrocortisone aceponate (Cortavance) was used, but no pronounced clinical effect was achieved. By the time of recovery, significant cosmetic defects remained in the form of scar tissue and skin hyperplasia in the bridge of the nose (Fig. 7, 8).



Fig. 7. Juvenile cellulite after therapy in the nasal area



Fig. 8. Juvenile cellulite after therapy

Discussion. During the treatment, the question of vaccination of the puppy arose. The WSAVA 2024 guidelines state: “If glucocorticoids are used to treat a serious illness, vaccination should be postponed until the animal returns to normal health. If discontinuation of therapy is not possible, vaccination should be carried out only when the disease is well controlled by a stable dose of glucocorticoids for several weeks. A sick animal should be treated in such a way as to avoid the risk of infection while it is not protected” [7]. In this case, the vaccination was performed one week after the withdrawal of prednisone, which minimized the risk of an insufficient immune response.

Conclusion. Based on the analysis of the presented clinical case, several key points can be identified that are important for the diagnosis, treatment and monitoring of juvenile cellulite.

- juvenile cellulite requires timely diagnosis and active immunosuppressive therapy;
- the disease, as a rule, proceeds sterically, but it is possible to attach a secondary infection with the development of deep pyoderma; regular cytological assessment is necessary to monitor the condition;
- when prescribing glucocorticosteroids and antibacterial drugs, the rapidly changing body weight of the puppy should be taken into account and the doses of medications should be adjusted in a timely manner;
- the prolonged course in the presented clinical case was probably due to the late start of full — fledged treatment - 6 days after the first clinical signs appeared;
- the age of sick puppies often coincides with the timing of vaccination against major viral infections. The issue of vaccination while taking immunosuppressive doses of prednisone reflects the need for a balance between potential risks and expected benefits. An individual approach is required, taking into account the dose and duration of therapy, the type of vaccine and the epizootological situation.

Key principles:

- preference for inactivated vaccines with severe immunosuppression;
- the possibility of vaccination with low doses of glucocorticosteroids;
- the need to monitor the immune response.

The decision on vaccination should be made jointly with the owners of an animal.

If the recovery time is beyond the generally accepted limits and there is no clinical improvement while taking prednisone at a dose of 2 mg/ kg, the possibility of replacing the glucocorticosteroid drug with dexamethasone at a dose of 0.2 mg/ kg or adding cyclosporine at a dose of 5 mg/ kg should be considered. In severe cases, recovery may occur later — 2-4 weeks compared to the dates indicated in most literature sources.

Prevention of scar formation consists in the immediate appointment of glucocorticosteroids.

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