STERILE SUBCUTANEOUS ABSCESS AS AN UNUSUAL COMPLICATION OF ULCERATIVE COLITIS IN CHILDHOOD

Case Report

ÇOCUKLUK ÇAĞINDA ÜLSERATİF KOLİTİN OLAĞANDIŞI KOMPLİKASYONU OLARAK STERİL SUBKUTANÖZ ABSE

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ABSTRACT

Ulcerative colitis (UC) is a clinical form of inflammatory bowel disease (IBD) presumed to have an autoimmune etiology. The coexistence of UC and aseptic subcutaneous abscess has been extremely rare and almost all are adult case reports or small series and very few pediatric cases have been reported. We describe a 15-year-old girl with UC complicated with concomitant aseptic subcutaneous abscess and arthritis. We review and discuss the subcutaneous sterile abscesses associated with UC.

Key Words:*Sterile subcutaneous abscess, ulcerative colitis, child.*

ÖZET

Ülseratif Kolit (ÜK), inflamatuvar barsak hastalığının (IBH) otoimmün etiyolojiye dayanan klinik şeklidir. ÜK ve aseptik subkutanöz absenin beraber olması genellikle erişkin hastalarda ve küçük olgu serilerinde bildirilmiştir. Çocuklarda çok az olgu bildirimi vardır. Burada on beş yaşında ÜK ile birlikte aseptik subkutanöz abse ve artriti olan bir olgu sunulmakta ve bu olgu aracılığı ile bu konu tartışılmaktadır.

Anahtar Kelimeler: *Steril subkutanöz abse, ülseratif kolit, çocuk.*

Ulcerative colitis (UC) is a clinical form of inflammatory bowel disease (IBD) presumed to have an autoimmune etiology. Clinically, symptoms may vary from intermittent rectal bleeding to more frequent bloody stools, abdominal pain, fever, anemia, and malnourishment. Up to 25% to 36% of IBD patients present with extra intestinal manifestations, involving nearly any organ system, which strongly suggests that UC is a systemic autoimmune disease rather than an intestinal-limited organ specific autoimmune disease (1). The association of pyoderma gangrenosum or erythema

nodosum with UC is well known. In addition, pustular eruption has been reported in UC. The coexistence of UC and aseptic subcutaneous abscess has been extremely rare and almost all are adult case reports or small series and very few pediatric cases have been reported. We describe a child with UC complicated with concomitant aseptic subcutaneous abscess and arthritis. We review and discuss the subcutaneous sterile abscesses associated with UC.

CASE REPORT

This 15-year-old girl had been diagnosed with UC by colonoscopy and biopsy 2 months before admission, with initial presentation of bloody diarrhea. She was started on regular treatment with mesalazine thereafter and bloody diarrhea has improved partially but she still had diarrhea. She presented to pediatric outpatient clinic with complaint of fever, painful ankle swelling and swellings on her right arm and face. She also complained of loss of apetite, weight loss and increase in number of stools during last few weeks. On physical examination there was tenderness and 10-15cm long enduration on the right arm proximal extensor region. There were 4 drainage points on this area. With squeezing 3-4 mL of pus was drained and sent for laboratory examination. On her face, at the right preauricular area there was a 3-4 cm enduration with a single drainage point. There was tenderness, edema and hyperemia on her right ankle. The ankle joint aspiration revealed normal synovial fluid. Laboratory examinations revealed normal leukocyte counts with elevated inflammatory parameters and accompanying hypoalbuminemia and anemia (Table 1). P- ANCA was positive and sacroilietis was observed on x-ray**(Figure 1).** Eye examination was negative for uveitis. The drainage material of abscesses revealed many polymorphonuclear neutrophils without visible pathogen on Grams' stain and culture remained sterile. Right arm magnetic resonance imaging (MRI) confirmed localized abscess formation without evidence of osteomyelitis (Figure 2). Erythrocyte suspension and fresh frozen plasma was transfused and empirical intravenous antibiotics (cefazolin and metronidazole) were started. However, antibiotics did not provide significant response in the local condition, and intermittent low-grade fever persisted. Aseptic subcutaneous abscess related to ulcerative colitis was strongly suspected. The patient was treated with methylprednisolone (1mg/kg/24h). Regression in arthritis and subcutaneous abscesses as well as diarrhea, fever and anorexia was noted in a few days after initiation of steroid therapy and the patient was discharged on day 7 (Table 2). After discharge steroid and mesalazine treatment was continued until when methylprednisolone was tapered and stopped according to clinical follow up. The patient under only mesalazine therapy has not exhibited recurrence of the bowel symptoms or subcutaneous abscesses since that time.

Table:1 *Biochemical Findings:*

CRP: 55.2 mg/dl	ALT (SGPT):7 U/L
ESR: 53mm/hr	AST (SGOT):11 U/L
Hemoglobin: 6.7 g/dL	Albumin: 1.9 g/dL
WBC: 9150	PT: 15.0 seconds
Hematocrit: 21.9%	INR: 1.14
MCV: 85.5	aPTT: 26.6 seconds
Platelet count: 354000	PPD:Negative
Peripheric smear: 46% PNL, 1% Lym, 15 % Mon	Quantiferon test: Negative
p-ANCA: Positive	c-ANCA: Negative

Table 2: *CBC and CRP values during the course of treatment*.

	CRP (mg/dl)	WBC	PNL %	Hemoglobin (g/dl)	Plt
At admission	55,2	9150	%46	6.7	354000
At 3rd day of admission (Before initiation of steroid)	76.9	13500	%64	11.5	489000
At 5th day of admission	13,1	11600	%65	10,5	533000

Figure 1: *Sacroilliac joint graph: Both sacroiliac joints are narrowed in superior regions. Sclerosis was noted in adjacent bony areas.*

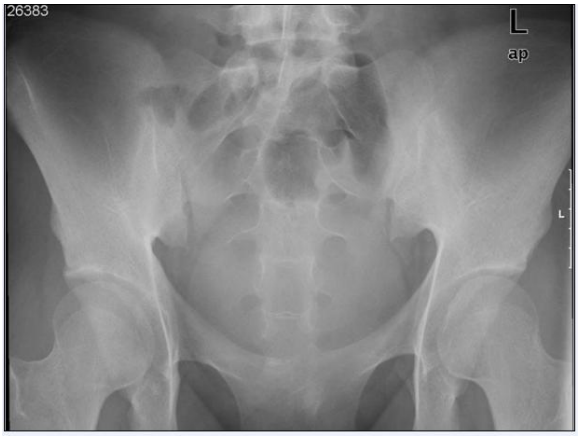
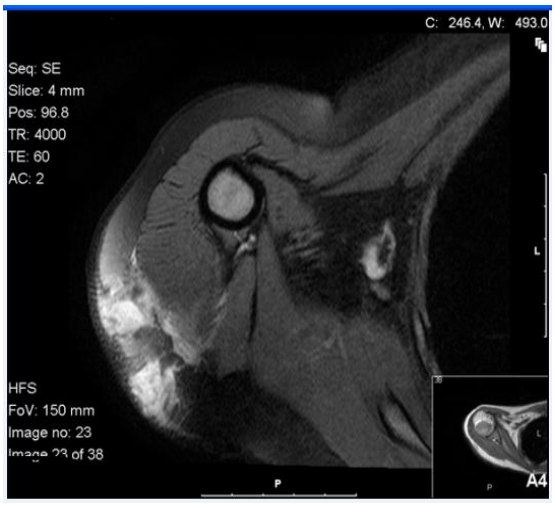
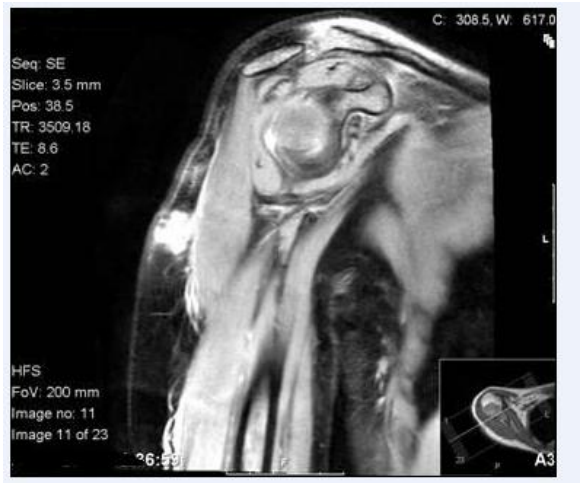


Figure 2: *Right Humerus MRI: A,B: At proximal region of humerus two abscesses are identified in subcutaneos tissue. Edema and intensity in deltoid muscle tissue and fascia is consistent with inflammation.*





DISCUSSION

Pyoderma gangrenosum (PG) and erythema nodosum, both paralleling the severity of colonic disease, are well known cutaneous manifestations associated with IBD (1). Abscesses in various body sites including subcutaneous tissue (2), liver (3), retropharyngeal region and spleen (4), psoas muscle (5) and abdominal lymph nodes (6) have been defined in IBD and majority of these belong to patients with Crohn's disease. Abscess formation in IBD is usually pyogenic and caused by fistula formation or hematogenous spread. Aseptic abscess is a very rare extra intestinal manifestation and among aseptic abscesses associated with IBD, a relatively more frquently encountered one is liver abscess. However great proportion

of these cases are of patients with Crohn's disease and practically all available data concerning liver abscesses in patients with IBD pertains to patients with Crohn's disease (3).There have been a few reported cases of recurrent aseptic subcutaneous abscess associated with UC (2). Murata *et al*. reported a patient with an abscess related to osteomyelitis of the sternum, thus the diagnosis of synovitis-acne-pustulosis hyperostosis-osteomyelitis (SAPHO) syndrome was made (2). Kinjo et al (7) reported a 34-year old women with UC who had two episodes of aseptic subcutaneous abscess within six weeks. The first occurred parallel to the exacerbation of colitis, but the second episode did not coincide. They reported that in both of these patients large subcutaneous abscesses as well as small pustules, developed with severe exacerbation of colitis and treatment with antibiotics, blood transfusion, and corticosteroids resulted in slow improvement in both the bowel symptoms and skin lesions. In our case, the patient presented with subcutaneous abscesses in her right upper arm and on zygomatic region. Abscesses of infectious origin had to be considered but there were negative findings in blood culture and abscess culture/ smear. Moreover abscess formation in multiple and nonadjacent sites supported a non-infectious process. In addition, the inflammatory parameters, including CRP, ESR, and clinical findings, all improved after steroid treatment rather than antibiotics therapy. Thus, a diagnosis of aseptic subcutaneous abscess was made. To our knowledge subcutaneous abscesses accompanying UC have been defined only in very few pediatric patients.

In previous cases, the severity of the skin lesions varied with exacerbation of the bowel symptoms, and cutaneous clearing was seen after control of the colitis had been achieved (2,3,6,7). Thus, an immune mediated reaction is highly suggested in such abscess formation, although the true mechanism is still unclear. The proposed mechanism is the shared autoantigen(s) theory. Human tropomyosin isoform 5 and colon epithelial specific proteins, the target autoantigen(s) in UC, have been found extra intestinally in nonpigmented ciliary epithelium in the eye, keratinocytes, biliary epithelium, and chondrocytes (8). Therefore, molecular mimicry between microbial peptides and these autoantigens can initiate both intestinal and extra intestinal manifestations in IBD (9). Aseptic abscesses of other tissues as well as subcutaneous area are mostly recurrent events. Common characteristic features of these cases are fever and arthralgia with exacerbation of colitis. Most of them are treated successfully with oral or pulse steroid therapy. Other immunosuppressive agents, such as cyclophosphamide and azathioprine, have been used simultaneously in a few cases. In our case, multiple subcutaneous abscesses were accompanying ankle joint arthritis, sacroileitis, fever and colonic exacerbation. Low-dose steroid resulted in significant improvement in all symptoms, supporting the suggestion that subcutaneous abscesses are manifestations of skin lesions as well as pustular eruptions in UC.

In conclusion, UC is regarded as a systemic autoimmune disease and several extra intestinal manifestations could be seen in UC patients. Erythema nodosum and pyoderma gangrenosum have been well-recognized cutaneous complications of UC. However aseptic subcutaneous abscess accompanying UC is an extremely rare condition among pediatric population. It is proposed to be of an immune mediated mechanism but this issue remains to be proved. Subcutaneous abscesses accompanying UC should be carefully assessed and steroid therapy should be considered in such circumstances.

ABREVIATIONS

UC: Ulcerative colitis, IBD:Inflammatory bowel disease, CBC:Complete blood count, CRP:c-reactive protein, AST: aspartate aminotransferase, ALT: alanine

aminotransferase, PPD: purified protein derivative, ANCA: Antineutrophil cytoplasmic antibodies, WBC: White blood cell, ESR: erythrocyte sedimentation rate, PT: Prothrombin time, aPTT: Activated partial thromboplastin time, MCV: mean corpuscular volume, PNL: Polymorphonuclear leukocyte, Mon:Monocyte, Lym: Lymphocyte, MRI:Magnetic resonance imaging.

REFERENCES

1)Danzi JT. Extraintestinal manifestations of idiopathic inflammatory bowel disease. Arch Intern Med 1988;148:297–302.

2) Murata I, Satoh K, Yoshikawa I, Masumoto A, Sasaki E, Otsuki M. Recurrent subcutaneous abscess of the sternal region in ulcerative colitis. Am J Gastroenterol. 1999 ;94:844-45.

3) Margalit M, Elinav H, Ilan Y, Shalit M. Liver abscess in inflammatory bowel disease: report of two cases and review of the literature. J Gastroenterol Hepatol. 2004 ;19:1338-42.

4) André M, Piette JC, Frances C, Wechsler B, Delevaux I, Aumaître O. Retropharyngeal and splenic aseptic abscesses treated with prednisone and cyclophosphamide in a patient with ulcerative colitis. Dig Dis Sci. 2003;48:1193-95.

5) Agha FP, Woolsey EJ, Amendola MA. Psoas abscess in inflammatory bowel disease. Am J Gastroenterol. 1985;80:924-28.

6) André M, Aumaître O, Papo T, Kemeny JL, Vital-Durand D, Rousset H, Ninet J, Pointud P, Charlotte F, Godeau B, Schmidt J, Marcheix JC, Piette JC. Disseminated aseptic abscesses associated with Crohn's disease: a new entity? Dig Dis Sci. 1998 ;43:420-28.

7) Kinjo F, Miyazato S, Hokama A, Kugai Y, Saito A. Aseptic subcutaneous abscess associated with ulcerative colitis. J Gastroenterol Hepatol. 2003;18:1214-15.

8)Das KM: Relationship of extraintestinal involvements in inflammatory bowel disease: newinsights into autoimmune pathogenesis. Dig Dis Sci 1999;44:1–13.

9) Kovvali G, Das KM: Molecular mimicry may contribute to pathogenesis of ulcerative colitis. FEBS Lett 2005;579:2261–66.