

# Pyoderma Faciale: Gram-negative Recovery by Means of Needle Aspiration

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## GOAL

To understand the clinical features of and possible organisms involved in pyoderma faciale

## OBJECTIVES

Upon completion of this activity, dermatologists and general practitioners should be able to:

1. Discuss the clinical features, including the new findings, of pyoderma faciale.
2. Describe the benefits of needle-aspiration technique in searching for pathogens.
3. Explain the different organisms that may be associated with this condition and its relevance to treatment modalities.

**CME** Test on page 280.

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*Pyoderma faciale is an inflammatory disease that until now was believed to occur only in women. Bacterial pathogens have not been found in most cases, and those found included only gram-positive microorganisms. We present 2 cases consistent with pyoderma faciale—one of them a 17-year-old adolescent boy—in which gram-negative bacteria were found. Enterobacter cloacae was found in one patient, and Klebsiella oxytoca was found in the other. Needle aspiration is the technique of choice in looking for pathogens in this disease.*

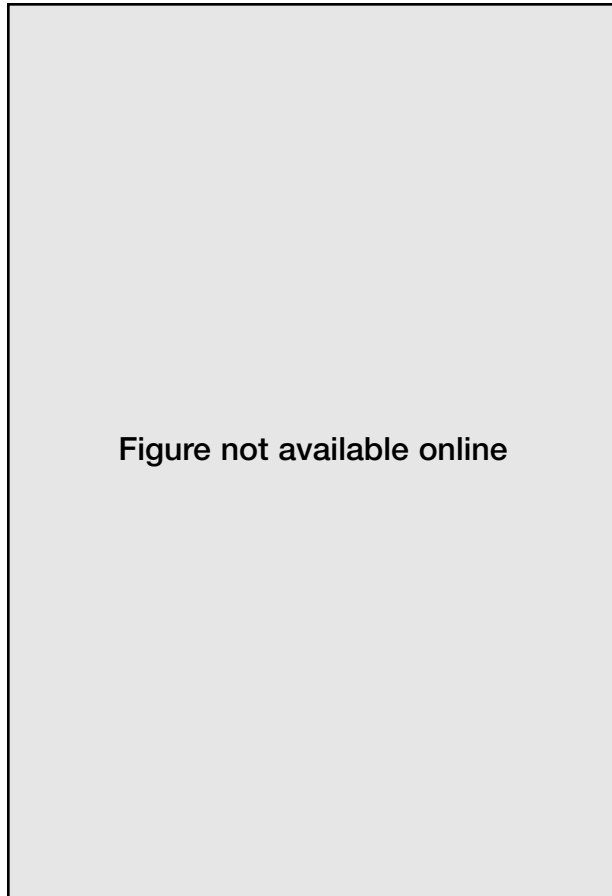
**P** yoderma faciale is an inflammatory disease characterized by a sudden and fulminating eruption of cystic lesions and purulent draining abscesses,

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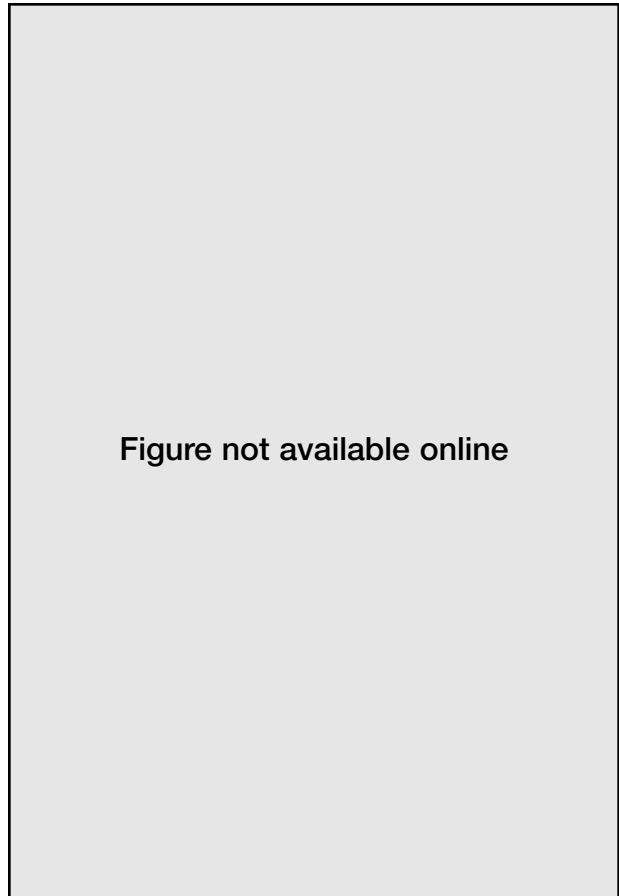
almost exclusively confined to the face. It has been considered a variant of acne conglobata,<sup>1,2</sup> as well as a severe form of rosacea, namely, rosacea fulminans.<sup>3</sup> The disease has been known to affect only young women and often is accompanied by facial erythema and edema. The back and chest are spared, and the absence of comedos is remarkable. Cultures of purulent material have given growth to *Staphylococcus aureus* in only 3 of the 51 cases reported.<sup>3</sup> We describe 2 new cases—including the first reported case in a male—consistent with pyoderma faciale, in which gram-negative organisms were cultured.

## Case Reports

**Patient 1**—A 17-year-old adolescent girl sought medical attention for a facial eruption interpreted as inflammatory acne that began one month earlier. She was treated initially with oral tetracycline at usual doses, but one month later her symptoms, characterized by edema and cystic lesions (Figure 1),



**Figure 1.** Patient 1 with abundant abscesses and pustules, edema, and intense seborrhea. Notably few comedos.



**Figure 2.** Patient 1 after one year of treatment.

worsened. Intense facial eruption and the absence of lesions on her back and chest were noted; seborrhea was present, and only a few comedos were detected. Results from culture of purulent material obtained from the spontaneous drainage of her lesions revealed no bacteria. However, additional culture obtained by needle aspiration of the purulent material from a cystic lesion gave growth to *Enterobacter cloacae*. The patient was then treated with oral ciprofloxacin 1 g/day for one month in combination with an oral contraceptive (cyproterone acetate 2 mg and ethinyl estradiol 35 µg) and isotretinoin 20 mg/day, the latter administered for one year, exceeding a total dose of 120 mg/kg. With this therapy, the patient improved gradually, with no residual scarring (Figure 2).

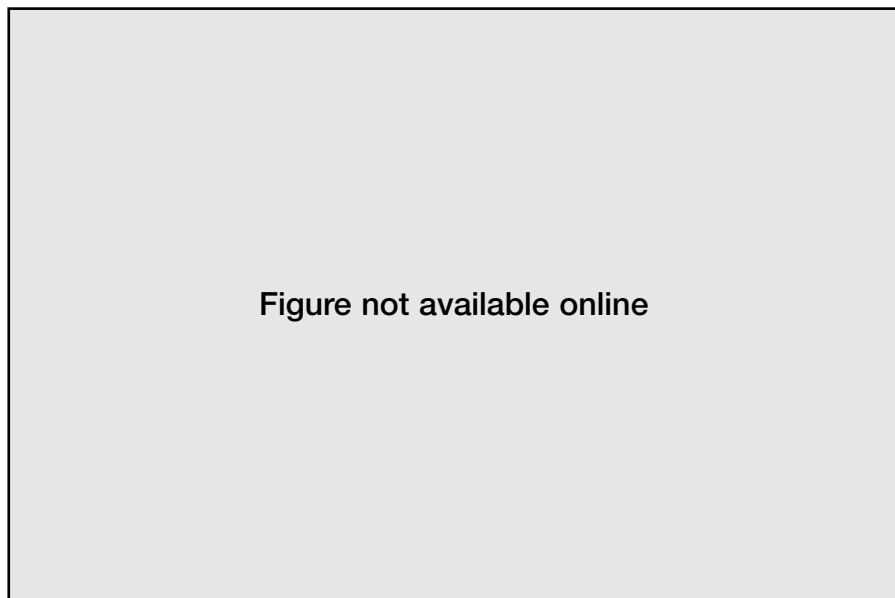
**Patient 2**—A 17-year-old adolescent boy presented with a sudden facial eruption characterized by edema and purulent cysts (Figure 3); no lesions were detected on his chest and back. A culture of the purulent material obtained by needle aspiration from one of his cysts revealed growth to *Klebsiella*

*oxytoca* and *S aureus*. He was treated simultaneously with oral ciprofloxacin and cloxacillin at usual doses for 10 days with no improvement, after which isotretinoin 30 mg/day was added. Although some abscesses persisted on his right cheek, leaving scars (Figure 4), improvement was apparent after 4 months, with regression of the cystic lesions.

In both cases, the needle-aspiration technique consisted of cleaning the affected area with ethanol followed by aspiration of a nodule with a 5-cc sterile syringe. After obtaining the purulent material, routine cultures were performed in 5% blood agar and thioglycolate.

### Comment

Pyoderma faciale was first described in 1940 by O'Leary and Kierland,<sup>4</sup> who reported 13 cases of acne in women from a series of 1600 patients.<sup>4</sup> The report summarized the principal features of the disease: affecting young women only, with rapid onset and fulminating course that is strictly localized to the face, and with a noted absence of comedos, as



**Figure 3.** Pyoderma faciale in patient 2. Deep-seated nodules and cysts with superficial crusts.



**Figure 4.** Facial scars in patient 2.

well as absence of acneiform lesions on the chest and back. In most patients, no previous history of acne vulgaris could be elicited; maximal involvement was reached within a few weeks and up to 3 months. The disease resolved within a year, and bacterial pathogens could not be recovered from the lesions. Subsequently, other series of cases have been described,<sup>1,3</sup> as well as localized forms, limited to the chin,<sup>5</sup> and 2 cases were associated with inflammatory bowel disease.<sup>6,7</sup> Results from cultures usually have revealed the growth of resident flora or of *Propionibacterium acnes*, and only in a few cases has *S aureus* been isolated.<sup>1</sup> We have not found any

report in which gram-negative organisms were detected. To our knowledge, this is the first report of gram-negative organisms isolated in pyoderma faciale.

*Enterobacter* and *Klebsiella* are gram-negative bacilli that belong to the Enterobacteriaceae family. Until some years ago, no great distinction was made between *Enterobacter* (formerly *Aerobacter*) and *Klebsiella*.<sup>8</sup> Both bacteria belong to the tribe Klebsiellae and usually are not related with disease in normal hosts. Normally, they act as opportunistic pathogens in hospitalized patients, although that was not the case with our patients, as both were young and healthy and were being

treated on an outpatient basis. Moreover, our patients did not have any contact with health personnel, whose hands could have been carriers of these pathogens (the origin of nosocomial infections with these bacteria).

Gram-negative folliculitis occurs as a complication in patients with acne vulgaris who have received oral antibiotics for prolonged periods.<sup>9</sup> This complication results in a decrease in gram-positive flora and an overgrowth of gram-negative organisms, the anterior nares being their probable reservoir. Gram-negative folliculitis is classified as type I or type II. Type I lesions consist of small pustules around the mouth and nose that, on culture, typically give growth to *Enterobacter aerogenes*, *Klebsiella pneumoniae*, or *Escherichia coli*; type II lesions consist of deep-seated nodules and cysts produced by *Proteus* organisms.<sup>10</sup> Both our patients were not receiving antibiotics before the development of their eruption; their lesions were cystic and did not correspond to the isolated organisms that would be expected for that type of gram-negative folliculitis. Our experience has shown that our patients fulfill the diagnostic criteria of pyoderma faciale in view of their fulminating course, strict localization of lesions to the face, and absence of previous acne vulgaris. Although rare, a localized variant of acne conglobata was another diagnostic possibility in our second patient, even though pyoderma faciale has been considered a localized variant of cystic acne that remains confined to the face.<sup>2</sup>

We did not sample the anterior nares of our patients for the origin of the bacteria. We emphasize that when superficial swabs were taken for culture in our first patient, no organism was isolated, but the results of the needle aspiration from the abscesses gave growth to gram-negative organisms in both patients. There is no adequate explanation as to why

the incidence of pathogenic bacteria in this highly purulent condition so often goes undetected. On the other hand, the technique of searching for pathogens was not mentioned in most studies, or consisted of cultures obtained from purulent discharge or from superficial swabs. Needle aspiration of cystic lesions or abscesses is the technique suggested for searching for bacterial pathogens to demonstrate the participant role, if any, of gram-negative organisms in this disease.

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