**BENIGN GONOCOCCAL SEPSIS WITH SKIN LESIONS**

**BY**

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Gonococcal sepsis is said to occur mainly in patients with old relapsing gonorrhoea or with genital complications of gonorrhoea (prostatitis, epididymitis, salpingitis) and may be of two distinct types:

(a) Severe prostration occurs with a high fever, and symptoms of widespread disease. The heart, meninges, kidneys, pleurae, liver, and skin may be involved. This type of sepsis has a grave prognosis and before the sulphonamide-antibiotic era 80 to 90 per cent. of patients with endocarditis died (Burckhardt, 1964).

(b) The patients are febrile but not severely ill, joint and skin symptoms dominating the clinical picture.

The skin lesions in gonococcal sepsis are typical. They appear in bouts as scantly solitary lesions, usually on the extremities but sometime also on the face and body. They are often transitory and may be seen in different stages. The early erythematous patch develops into a red papule and then into a vesicle or pustule. The lesions are often haemorrhagic and tender and may be surrounded by an erythematous halo; they then dry up and small crusts are seen after a few days.

**Present Investigations**

During the last year nine patients, one male and eight females, were seen at the Department of Dermatology and Venereology, Gothenburg, Sweden, with a typical clinical picture of gonococcal sepsis which exactly corresponds to the second type described above. The clinical and laboratory data are shown in Tables I and II. Two of these cases have been described in detail elsewhere. (Björnberg and Gisslen 1965).

Histologically the pustules showed a large infiltrate of neutrophils round the vessels in the corium. This infiltrate invaded the epidermis which

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**Table I**

**CLINICAL DATA ON NINE PATIENTS WITH BENIGN GONOCOCCAL SEPSIS**

<table>
<thead>
<tr>
<th>Case No.</th>
<th>Age (yrs)</th>
<th>Sex</th>
<th>Previous Gonorrhoea</th>
<th>Skin Lesions</th>
<th>Joint Manifestations</th>
<th>Fever</th>
<th>Symptoms of Genital Gonorrhoea</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>20</td>
<td>F</td>
<td>No</td>
<td>Typical</td>
<td>Elbow + ankle</td>
<td>1 month</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>22</td>
<td>F</td>
<td>No</td>
<td>Typical</td>
<td>Ankle</td>
<td>3 weeks</td>
<td>None</td>
<td>Delivery 3 weeks earlier</td>
</tr>
<tr>
<td>3</td>
<td>20</td>
<td>F</td>
<td>No</td>
<td>Typical</td>
<td>Knee + wrist</td>
<td>Slight</td>
<td>None</td>
<td>Sexual partner of No. 6</td>
</tr>
<tr>
<td>4</td>
<td>30</td>
<td>F</td>
<td>No</td>
<td>Typical</td>
<td>All large joints</td>
<td>Absent</td>
<td>None</td>
<td>Sexual partner treated for gonococcal epididymitis</td>
</tr>
<tr>
<td>5</td>
<td>20</td>
<td>F</td>
<td>Salpingitis, 1963</td>
<td>Typical</td>
<td>Shoulder</td>
<td>Present</td>
<td>None</td>
<td>Dilatation and curettage 1 month earlier</td>
</tr>
<tr>
<td>6</td>
<td>26</td>
<td>M</td>
<td>No</td>
<td>Typical</td>
<td>Ankles</td>
<td>Present</td>
<td>Urethral discharge</td>
<td>Prostatitis Sexual partner of No. 3</td>
</tr>
<tr>
<td>7</td>
<td>16</td>
<td>F</td>
<td>Urethritis, 1963</td>
<td>Typical</td>
<td>Ankles + knees + elbows + fingers</td>
<td>Present</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>27</td>
<td>F</td>
<td>No</td>
<td>Typical</td>
<td>Wrist + knee + shoulder</td>
<td>Present</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>21</td>
<td>F</td>
<td>No</td>
<td>Typical</td>
<td>Ankles</td>
<td>Present</td>
<td>Vaginal discharge</td>
<td></td>
</tr>
</tbody>
</table>

100
was partly necrotic. No bacteria were seen in the sections.

Two women (Cases 5 and 7) had gonorrhoea one year before the sepsis developed but these earlier infections had been adequately treated and controlled. In one patient (Case 2) the gonococcal sepsis started after the delivery of a child, and in another (Case 5) 1 month after curettage of the uterus. In seven of the women there were no clinical signs of genital gonorrhoea, but the man (Case 6) had symptoms of urethritis and prostatitis and one woman (Case 9) had vaginal discharge for 2 months. In all but Case 1, gonococcal sepsis was diagnosed from the typical clinical picture, the septic or maintained pyrexia, joint symptoms, and characteristic skin lesions. Positive gonococcal cultures from the genital mucosa then confirmed the diagnosis. Cases 3 and 6 were sexual partners. In the eight cases in which the action of antibiotics was investigated, the gonococci were sensitive to penicillin streptomycin, tetracycline, and chloramphenicol. In all patients the infections healed promptly on treatment with penicillin.

**Comment**

The clinical picture of benign gonococcal sepsis is thus characterized by fever, mild systemic symptoms, inflammation of the joints, a scanty discrete papulo-pustular haemorrhagic rash and the presence of gonococci in the genital tract.

It has been said that, since sulphonamides and antibiotics were introduced for the treatment of gonorrhoea, no cases of skin manifestations of gonorrhoea have been reported in the literature (Tappeiner and Wodniak, 1964). However, during the last year, several cases have been described with exactly the same clinical picture as that seen in our cases: fourteen cases (1957–63) were reported from the USA, two (1963) from England, four (1964) from Denmark, one (1964) from Sweden, two (1965) from the USA. The data from these recent publications concerning the finding of gonococci in the blood, skin lesions, and anogenital mucosa are summarized in Table III. It has been doubted whether this syndrome is caused by a true gonocoecism because goncocci may be

**Table II**

RESULTS OF LABORATORY TESTS ON NINE PATIENTS WITH BENIGN GONOCOCCAL SEPSIS

<table>
<thead>
<tr>
<th>Case No.</th>
<th>Haemoglobin (g. per cent.)</th>
<th>White Cell Count</th>
<th>Erythrocyte Sedimentation Rate</th>
<th>Urinary Sediment</th>
<th>Proteinuria</th>
<th>Culture for Gonococci</th>
<th>Complement Fixation Test for Gonococci</th>
<th>Anti-streptolysin Titer</th>
<th>Anti-staphylo-lysin Titer</th>
<th>Agglutination of Sensitized Sheep Erythrocytes</th>
<th>Electrocardiogram</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>8-5</td>
<td>4,100</td>
<td>60</td>
<td>0</td>
<td>0</td>
<td>+</td>
<td>+</td>
<td>800</td>
<td>&lt; 2</td>
<td>Normal</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>14-5</td>
<td>11,400</td>
<td>31</td>
<td>White blood cells</td>
<td>0</td>
<td>+</td>
<td>+</td>
<td>200</td>
<td>&lt; 2</td>
<td>Normal</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>13-3</td>
<td>9,900</td>
<td>20</td>
<td>Red blood cells</td>
<td>0</td>
<td>+</td>
<td>+</td>
<td>Weakly</td>
<td>200</td>
<td>&lt; 2</td>
<td>Normal</td>
</tr>
<tr>
<td>4</td>
<td>9-8</td>
<td>7,400</td>
<td>44</td>
<td>0</td>
<td>0</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>Normal</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>8-6</td>
<td>9,800</td>
<td>32</td>
<td>0</td>
<td>0</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>Normal</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>11-9</td>
<td>6,000</td>
<td>64</td>
<td>0</td>
<td>0</td>
<td>+</td>
<td>Staph. aureus</td>
<td>+</td>
<td>400</td>
<td>&lt; 2</td>
<td>Normal</td>
</tr>
<tr>
<td>7</td>
<td>13-9</td>
<td>6,300</td>
<td>12</td>
<td>White and red blood cells</td>
<td>0</td>
<td>+</td>
<td>+</td>
<td>Normal</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>11-5</td>
<td>7,100</td>
<td>-</td>
<td>0</td>
<td>0</td>
<td>+</td>
<td>+</td>
<td>200</td>
<td>&lt; 2</td>
<td>Partial degree heart block</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>10-4</td>
<td>7,400</td>
<td>45</td>
<td>0</td>
<td>0</td>
<td>-</td>
<td>+</td>
<td>Staph. aureus</td>
<td>+</td>
<td>200</td>
<td>&lt; 2</td>
</tr>
</tbody>
</table>

**Table III**

DEMONSTRATION OF GONOCOCCI IN THE GENITAL TRACT, BLOOD, AND SKIN LESIONS IN 31 PATIENTS WITH BENIGN GONOCOCCAL SEPSIS

<table>
<thead>
<tr>
<th>Author</th>
<th>No. of Cases</th>
<th>Genitalia</th>
<th>Blood</th>
<th>Skin Lesions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abu-Nasser and others</td>
<td>14</td>
<td>11 of 12</td>
<td>0 of 11</td>
<td>0 of 8</td>
</tr>
<tr>
<td>Kvorning</td>
<td>4</td>
<td>3 of 4</td>
<td>0 of 2</td>
<td>0 of 3</td>
</tr>
<tr>
<td>O'Sullivan</td>
<td>2</td>
<td>2 of 2</td>
<td>0 of 1</td>
<td>0 of 2</td>
</tr>
<tr>
<td>Danielsson</td>
<td>1</td>
<td>1 of 1</td>
<td>0 of 1</td>
<td>1 of 1</td>
</tr>
<tr>
<td>Ackerman and others</td>
<td>1</td>
<td>0 of 1</td>
<td>1 of 1</td>
<td>1 of 1</td>
</tr>
<tr>
<td>Present Series</td>
<td>9</td>
<td>9 of 9</td>
<td>1 of 5</td>
<td>0 of 7</td>
</tr>
</tbody>
</table>
difficult to find in the blood and in the skin. The
demonstration of gonococci in the blood in one of
our patients and in the skin in certain other cases
(Table II) proves, however, that the syndrome is due
to a gonococcal sepsis.

All our patients were seen at the hospital because of
their skin lesions and were not aware of any
venereal infection. The occurrence of benign
gonococcal sepsis in two sexual partners observed
by Abu-Nassar, Hill, Fred, and Yow (1963), Ack-
ermann, Miller, and Shapiro (1965) and also in our
own series may be important observations. A
virulent type of gonococcus may be responsible for
this gonococcal sepsis, which seems to be increasing
in frequency.

Summary

Nine cases of benign gonococcal sepsis seen during
1965 are described. The typical clinical picture
included fever, joint manifestations, a discrete
haemorrhagic papulopustular eruption, and usually
asymptomatic genital gonococcal infection. Neis-
seriae gonorrhoea were isolated from the blood
in one case. In the recent literature 22 further cases
have been reported.

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Une infection bénigne gonococcique avec des lésions
cutanées

RÉSUMÉ

Neuf cas d'infection bénigne gonococcique vus
pendant 1965 sont décrits. Les signes typiques cliniques
sont: la température, l'affection des articulations,
l'érupion discrète de forme papulo-pustulaire hémor-
gragique, et généralement une infection génitale gono-
coccique sans symptômes. Des gonocoques de Neisser
ont été isolés du sang d'un de ces cas. 22 autres cas ont
été rapportés récemment dans les journaux médicaux.