

**DISEASES PRESENTING
AS URETHRITIS/VAGINITIS: GONORRHOEA, CHLAMYDIA, TRICHOMONIASIS,
CANDIDIASIS, BACTERIAL VAGINOSIS**

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According to WHO (1) gonococcal and non-gonococcal urethritis are a very important public health problems. Bacterial vaginosis is also a quite frequent problem and will be discussed as a special topic; trichomoniasis and candidiasis are studied together with nongonococcal urethritis.

Gonorrhoea

Aetiology and pathology

Neisseria gonorrhoeae is the cause of gonorrhoea, one of the commonest sexually transmitted diseases. An estimated 62 million cases of gonorrhoea were diagnosed in the world in 1995 (1).

The incubation period is 2-5 days (1-14 days).

The urethra in both sexes, the anorectal and oropharyngeal areas are primarily affected. Para-urethral glands, cervix, endometrium, fallopian tubes and peritoneum may also be affected in gonorrhoea.

Clinical features

The classical clinical aspects of the gonococcal urethritis are: dysuria, urethral itching, and abundant purulent urethral discharge (figure 1 see page 207). Mucous discharge may also be the clinical manifestation, and it is important to remember that in some male patients the gonococcal urethritis may be asymptomatic (2).

Approximately 70% of female patients are asymptomatic.

The conjunctivae may be infected by autoinoculation. Cutaneous lesions and disseminated gonococcal infection occur in about 1-3% of cases (3).

Prostatitis, epididimitis, and arthritis are rare complications in patients under adequate treatment. Gonococcal balanoposthitis may occur, and is characterized by tender ulcers, pustules, or furuncles on the prepuce or shaft of the penis and may occur in association with gonococcal urethritis or more frequently, without urethral infection (4). Abscesses of the prepuce and progressive ulceration of the glans with lymphadenopathy may be seen (4).

Septicaemia may rarely occur: the patient is severely ill with high fever, and meningitis or endocarditis (3).

N. gonorrhoeae can be transmitted at birth. Neonatal gonorrhoea can cause ophthalmia neonatorum, scalp abscesses, vaginal, rectal, oral, joint and disseminated infections (5). Acquired beyond 1 month of age, gonorrhoea is virtually diagnostic of sexual abuse (5).

In the prepubertal girl, gonorrhoea is usually present with severe vulvitis, edema, dysuria, and copious malodorous vaginal discharge (5).

Prepubertal boys are symptomatic with urethritis and discharge.

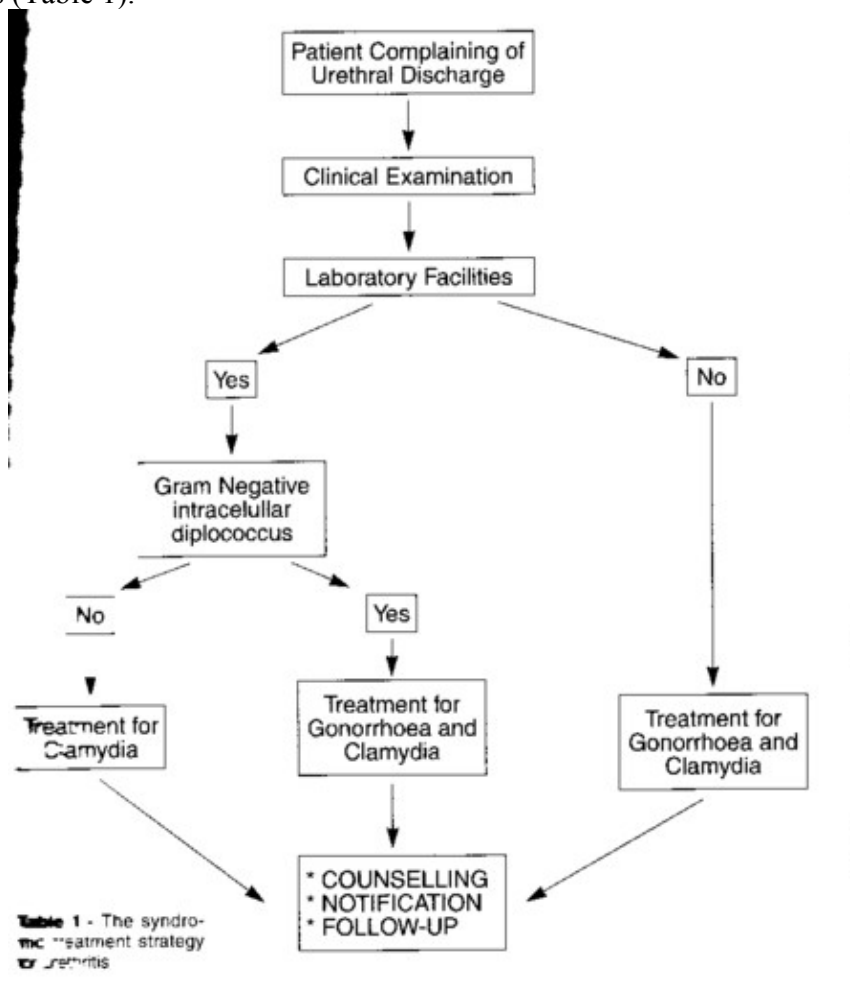
Diagnosis

Whenever is possible, the diagnosis of gonorrhoea should be confirmed by demonstration of *N. gonorrhoeae*.

Gram stain of the pus demonstrating intracellular Gram negative diplococci and culture on selective media such as Thayer-Martin of exudate or secretion remain the essential methods.

For the detection of gonococci in pharyngeal and rectal specimens, the use of selective medium is essential.

Unfortunately the confirmation of gonorrhoea is not always possible. The syndromic treatment is a new strategy that seems to be useful in rural areas or health centers without the laboratory facilities for the correct diagnosis (Table 1).



Treatment

400mg cefixime seems to be the preferable single-dose oral treatment for uncomplicated gonorrhoea (6, 7). 1,0g Azithromycin or 400 mg Ofloxacin are also alternatives for single-dose oral treatment. A single dose of intra-muscular application of 250 mg of ceftriaxone or 500 mg of oral ciprofloxacin or 200 mg of oral sparfloxacin (8) are also highly effective against *N. gonorrhoeae*.

A single dose of intra-muscular application of 2 400 000U of procaine penicillin, or 3,5g of ampicillin, all with oral 1,0g probenecid are alternative treatments for gonorrhoea. It is important to remember that gonococci resistant to penicillin is very high in many countries (9, 10, 11, 12).

Strains of gonococci with decreased susceptibility to ciprofloxacin have been described in the USA (13), and quinolone-resistant strains have been reported from Hong-Kong (14) and Australia (15). According to Knapp et al. (16) fluoroquinolone-resistant strains of *N. gonorrhoeae* account for approximately 10% of all gonococcal strains isolated in Hong Kong and the Republic of Philippines. 50% of *N. gonorrhoeae* from some Far Eastern countries present with decreased susceptibility (intermediate resistance) to fluoroquinolones.

Tetracyclines and quinolones are contra-indicated for pregnant women and children.

All the patients with gonococcal urethritis should be encouraged for HIV testing.

Treatment of sex partners is an essential part of sexually transmitted diseases control. The syndromic treatment is summarized in Tables 1 and 2.

Non-gonococcal urethritis

Non-gonococcal urethritis (NGU) is among the most common sexually transmitted diseases. There were an estimated 89 million patients with Chlamydia, and 170 million with Trichomonas infection in 1995 according to WHO according to WHO (1).

NGU can be caused by bacteria, viruses, parasites and yeasts (17). The most important NGUs are:

1. Chlamydial urethritis

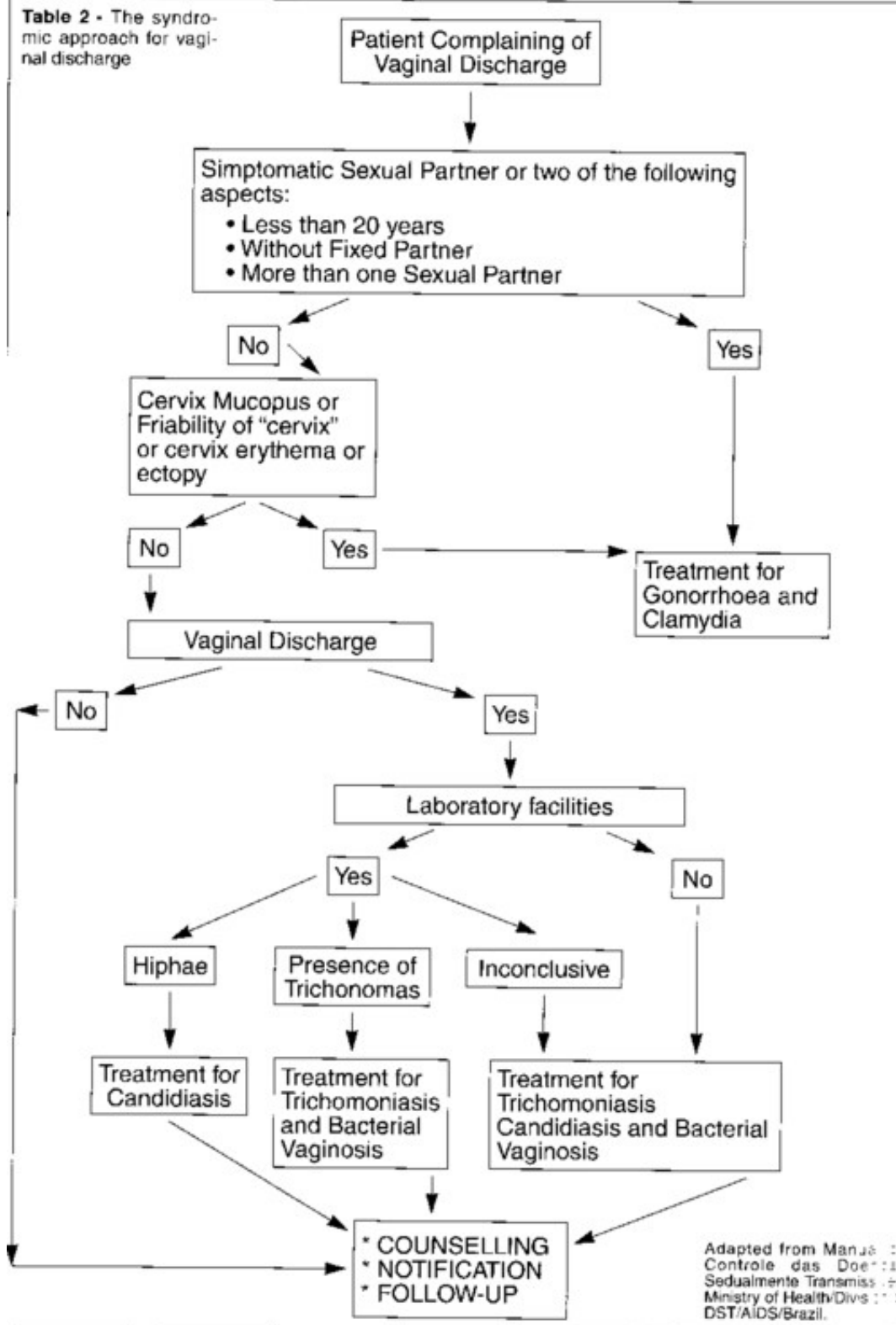
1.1. Aetiology and pathology

Chlamydia trachomatis has a life cycle with both extracellular and intracellular components. Women with untreated *C. trachomatis* may harbor the infection for up to 15 years (18). The prevalence of *C. trachomatis* in women is 5-30% depending on the population studied (19).

The incubation period is 7 to 21 days.

There are 18 distinct serotypes of Chlamydia trachomatis and serotypes D to K cause sexually transmitted genital infections and neonatal infections. It accounts for 35% to 50% of all cases of NGU, but also causes deeper infections such as cervicitis, endometritis and salpingitis. Eye infection may result from contact with infected genital secretions (3).

Table 2 - The syndromic approach for vaginal discharge



Adapted from Manual de Controle das Doenças Sexualmente Transmissíveis, Ministério da Saúde, DST/AIDS/Brazil.

C. trachomatis types L1, L2 and L3 cause the Lymphogranuloma venereum.

1.2. Clinical features

C. trachomatis is the major cause of mucopurulent cervicitis and pelvic inflammatory disease (PID). Mucopurulent cervicitis is the ignored counterpart in women of urethritis in men (20). Mucopurulent cervicitis may be caused also by *N. gonorrhoeae*, *Trichomonas vaginalis*, *Mycoplasma hominis*, *Ureaplasma urealiticum* and Herpes simplex virus.

Other manifestations of chlamydial lower tract infection include: acute urethral syndrome, acute Bartholinitis and proctitis (21).

The clinical spectrum of PID ranges from subclinical endometritis to frank salpingitis, pelvic peritonitis, periappendicitis and perihepatitis (22, 23).

In men the urethritis caused by *Chlamydia* is often minimally symptomatic and characterized by mucous discharge (figure 2, see page 208) and slight dysuria. Purulent discharge may occur and simulate gonorrhoea.

In half of female and 1/3 of male patients the chlamydial infection may occur without clinical symptoms (24, 2).

C. trachomatis, like gonorrhoea, can infect a newborn during birth. Unlike gonorrhoea, *Chlamydia* can be carried asymptotically in the rectum for up to 29 months (5). Infection detected in a child younger than 2,5 years is not necessarily indicative of sexual abuse (4).

In prepubertal girls, the infection is typically vaginal, rather than cervical. It may present as a vaginal discharge or be asymptomatic (4).

The main long-term sequelae of PID are infertility and adverse pregnancy (ectopic pregnancy) outcome (21).

Occasionally balanitis may be associated with Chlamydial urethritis (25).

1.3. Diagnosis

The isolation of *C. trachomatis* (McCoy cells culture) from the oral pharynx, vagina, or rectum and the rapid assays using monoclonal antibodies with direct immunofluorescence or enzyme-linked immunoassays are the current laboratorial methods utilized for the diagnosis of *C. trachomatis*.

Patients with clinical symptoms, and 4 or more pus cells per high power field on urethral smear, or 20 and more pus cells per field in the urine are indications for treatment as NGU (26).

1.4. Treatment

For NGU caused by *Chlamydia* the therapy of choice are the tetracyclines. The recommended treatment is 500mg tetracycline hydrochloride four times a day for 7 days, or 100mg Doxycycline twice a day for 7 days or minocycline 100mg daily for 7 days. Doxycycline is largely utilized and like the other tetracyclines it is very effective. *C. trachomatis* resistant to tetracyclines is not frequent.

Tetracyclines are contra-indicated for pregnant and nursing women, and for children less than 8 years old.

Erythromycin, 50mg/kg/day, 4 times daily for 7 to 14 days or 1 gr. Azithromycin as single dose are the treatments of choice for children or pregnant women and for adult patients that for any reason cannot take tetracycline.

A single-dose 1 gr. oral Azithromycin is an alternative for the uncomplicated chlamydial cervicitis and urethritis. This treatment is equivalent to standard therapy with doxycycline (27, 28). Azithromycin can be given where the causative pathogen of urethritis/cervicitis is uncertain, and it is often, therefore, most useful in acute therapy where there is no immediate microbiological back-up (29).

Ofloxacin 200mg twice daily for 7 days is also very effective. As with the tetracyclines, it is contraindicated for pregnant women and for children.

In many places the confirmation of the diagnosis is impossible. The syndromic treatment tables 1 and 2 and the adequate follow up is the option in this situation.

2. Other causes of NGU

C. trachomatis is the responsible of 30 to 40% of NGU, and *Ureaplasma urealyticum* is detected in up to 40%.

Mycoplasmas, mainly *U. urealyticum* and *Mycoplasma hominis*, are normal commensal organisms of the genital tract, which sometimes makes it difficult to determine their pathogenicity. However they are responsible for urogenital infections, and *U. urealyticum* is a pathogen in male urethritis (30). The treatment is the same for both.

Trichomonas vaginalis, herpes simplex virus, and *Candida* spp. are the single causative organism of the NGU in approximately 1-2%.

Staphylococcus, *Streptococcus* and *E. coli* may cause NGU.

In most of the patients the signs and symptoms of NGU are similar for the different pathogens. In as many as 20-30% of patients no known pathogen can be isolated (17).

Whenever possible, the treatment should be oriented in accordance with the isolated agent.

As already mentioned, the tetracyclines are the treatment of choice for NGU caused by *C. trachomatis* and *U. urealyticum*.

If the microbiological diagnosis is not available, the syndromic treatment is recommended tables 1 and 2.

Bacterial vaginosis

Aetiology and pathogenesis

In women with a normal vaginal flora the wet mount shows: normal epithelial cells, a dominant *Lactobacillus* flora and no or only a few leukocytes (31)._Clinical aspects

According to Martius (31) the diagnosis of BV is based on the following aspects:

- a) Increase in vaginal discharge - characterized by a thin, homogenous, and whitish-yellow or gray colour, and sometimes frothy discharge;
- b) The discharge has a fish odor specially after alkalization (coitus, menstrual period) or alkalization with 10% potassium hydroxide (KOH);
- c) Usually there is no erythema.

Diagnosis

- a) Presence of clue cells on wet mount. The clue cells are epithelial cells heavily coated with bacteria that have been identified as *Gardnerella vaginalis*;
- b) *G. vaginalis* is found in high concentrations in the vaginal fluid of over 90% of women with BV (32);
- c) Patients with BV typically have no or only a few Lactobacilli, sometimes *Bacteroides* sp, *Mobilincus* sp, *Mycoplasma* and *Peptostreptococcus* may be involved in BV;
- d) Virtually all women with BV have a pH of more than 4.5 due to the lack of lactic-acid-producing Lactobacilli (33).

Treatment

2g Tinidazol or 2mg Metronidazol single-dose oral treatment or Clindamycine 300 mg twice daily for 7 days.

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