

## A synopsis of sexually transmitted infections in South Africa

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For the past 15 years, there have been various measures put forward by the South African government to fight sexually transmitted diseases in South Africa. By far, the most prevalent STI has been HIV and a huge amount of resources have been put forward for the prevention and treatment thereof. Others have been managed using a syndromic approach and this has been fairly successful in most communities. Sexually transmitted infections are caused by intimate sexual contact with an infected person. It can also occur from oral sexual contact or very rarely by using common facilities. However, there are also some sexually transmittable infections whereby non-sexual routes of transmission predominate and sexual transmission is incidental. See table 1.

Due to the fact that our infected patients tend to have more than one STI at a time, the syndromic approach is still very effective in our context. However, with the advent of the internet and more awareness campaigns, patients do not only want to be treated, but also want to put a name to their disease. They tend to get more satisfaction with the name of the disease than from the treatment itself. Thus there is an increased demand in serology testing for the common STIs, which can be quite costly and the results can be ambiguous. An accurate knowledge of the typical clinical presentation of various sexually transmittable diseases can be very helpful and tends to put the patient more at ease, even though the final treatment plan may still entail the use of the syndromic management approach. Patients are very interested to know the incubation period, the typical presentation and mode of transmission, probably because they want to pinpoint the event that led them to inherit the disease.

A few important facts that one should keep in mind while treating somebody with a suspected STI:

1. Up to 30% of patients with an STI may also be infected with HIV as well, and thus they must be encouraged to get tested. Elisa or other confirmatory tests need to be done and repeated after a period of time
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2. A good history, though difficult to obtain, can be invaluable. Partners need to be evaluated and treated as well
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3. Not all rashes in the genital region are of infectious cause. There are hundreds of skin diseases that can affect the anogenital region. Thus we must have an open mind and if uncertain one has to be referred to a skin specialist
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4. A new and emerging problem seen more and more often at our clinics is the psychological aspect
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that precedes an encounter or treatment of STI's, which can lead to diseases like STI phobias, vaginismus, penile and/or vaginal pre-occupation

Some of the commonest sexually transmissible infections in South Africa will be discussed briefly with their specific treatments.

Gonorrhoea is still fairly commonly seen in our population, especially in the low socio-economic regions. It is caused by bacteria called *Neisseria gonorrhoea* which infects the mucous membranes of the human genital tract (as well as the anus, rectum and mouth) after direct contact with the mucosal surface of an infected person. The incubation period is relatively short and it takes 2 to 5 days until signs and symptoms appear. Up to 10% of infected men and 50% of infected women remain asymptomatic. The rest may have symptoms at the site of infection or rarely disseminated disease that may cause systemic complications. Most commonly there is a discharge from the genital tract. Clinical manifestations are listed in table II.

Swabs of the discharge material can easily identify the bacteria on microscopy and thus treatment can be instituted. Systemic disease can be confirmed with serology for *N. Gonorrhoea*. However in uncertain cases, a differential diagnosis of *Chlamydia*, *Trichomonas vaginalis*, yeasts and anaerobic bacteria should not be ignored.

Usually a single dose of Cefixime tablet 400mg is sufficient to treat the disease; however, we also advocate the use of Doxycycline capsules 100mg b.d for 7 days to cover any other co-infections. The bacteria has developed some resistance to Ciprofloxacin, thus it is no longer advocated as a first-line therapy.

#### Chancroid

This is caused by the sexually transmitted gram-negative, anaerobic bacteria, *Haemophilus ducreyi*. Fortunately it is not that commonly encountered in our clinic. It is characterised by acute genital ulcers and the development of inguinal adenitis and buboes. In men the lesion starts as a papule, surrounded by erythema and soon progresses to a pustule and later forms a painful ulcer. The edges of the ulcer tend to be sharply demarcated. There can be a presence of several ulcers and with time they may coalesce. Most lesions are located on the internal or external surfaces of the prepuce or around the frenulum and can be accompanied by oedema of the prepuce. In woman the majority of lesions are within the introital area, however, they may also occur on the cervix or vaginal wall as well as the peri-anal region. In both men and women a painful inguinal lymphadenitis is common and may be unilateral. The inguinal buboes may lead to ulceration and sinus formation.

Diagnosis is made clinically and culture of a swab taken from the ulcer can be used as a confirmatory test. One should always be aware of a differential of infective causes of genital ulcers which is listed in table III. As for the treatment, the syndromic management approach for genital ulcers is still recommended. Chancroid responds to Erythromycin 500mg po qid for 7 days.

Lymphogranuloma venereum is an STI caused by the bacteria *Chlamydia trachomatis*. In our clinic, many patients tend to have a history of a sexual encounter with somebody from England or other parts of Europe, where the incidence is rising. This disease typically progresses through three stages whereby after the initial infection of the genital mucosa, there is inguinal lymphadenopathy which is commonly unilateral. Thereafter the lymph nodes can coalesce and become a firm mass, with the formation of draining sinuses. This is followed by involution, proctocolitis and involvement of perirectal lymphatic tissues. If left untreated, relapses may occur, leading to anal fistulae and rectal strictures. Rarely, meningeal irritation, hepatitis and arthritis can occur due to systemic spread. Inguinal adenopathy is observed in only one third of females and proctitis and pain in the lower abdomen may be the only symptoms.

Diagnosis is made clinically, by PCR of lesional tissue or serology which can differentiate it from Chancroid, Cat-scratch disease or any other causes of genital ulcers as listed in table III. Crohn's disease needs to be excluded in cases of ano-genital –rectal involvement, which does not respond to antibiotics.

Treatment involves the use of Doxycycline caps 100mg b.d for 7 days.

Donovanosis is caused by the gram negative bacteria, *Calymmatobacterium granulomatis*. It primarily causes genital ulcers on the glans penis or the vulvar area, which have a characteristic beefy red appearance. Extragenital lesions rarely occur due to auto-inoculation or dissemination and have been observed in the skin, bones and oral cavity. The diagnosis can be confirmed by the demonstration of Donovan bodies in tissue smears. This disease should be treated for a longer period of time, with Doxycycline caps 100mg b.d for 3 weeks or until all lesions are completely healed.

Other sexually transmitted infection of bacterial origin includes Syphilis. With the HIV epidemic in our country, more and more cases are being detected nowadays. Every now and then, it is encountered as a painless genital ulcer in a venerology clinic or a diffuse non-specific rash of secondary syphilis, in a dermatology clinic. However due to the routine use of antibiotics, most doctors will never encounter tertiary syphilis in their practice. A brief description of the disease is included in table IV:

Apart from the above bacterial infections, there are many viral infections that are transmitted through sexual contact. Herpes 1 and 2, Human papillomavirus and Molluscum contagiosum are commonly seen in sexual health clinics. Herpes 1 and 2 are the leading cause of genital ulcers in South Africa and this has led to the inclusion of Acyclovir in the syndromic management of genital ulcers in our South African guidelines. Though HIV positive patients respond better to the use of Acyclovir for syndrome management, it should be used in all patients.

Genital herpes presents as multiple papules or vesicles which can have a burning, painful feeling. These break down to form a slow healing ulcer with recurrences at the previously affected site. A differential for genital ulcers has been listed in table III. The management entails the use of Acyclovir tabs 400mg tablets t.d.s for 5-7 days or Famciclovir tablets 250mg t.d.s for 5 days.

During the past few years, there has been an increasing awareness of the Human papilloma virus (HPV 16, 18) and its association with cervical cancer. It is mostly sexually transmitted and can lead to warts in the genital region, cervix cancer as well as squamous cell carcinomas of the penis, vulva or rectum. Once established, the treatment of genital warts can be very challenging with frequent relapses and cure is rare. Fortunately nowadays we have two vaccines, Gardasil and Cervarix, which

can be used to immunise young females between the ages of 10 to 26 years against HPV 16, 18, thereby decreasing the chance of having cervix cancer, as well as prevention of genital warts. It has been proven to decrease the incidence of genital warts in young males as well. See table V for treatment options.

Molluscum contagiosum is caused by a “pox virus” and is very commonly encountered in our clinic. It presents as small umbilicated papules which is commonly mistaken for warts. Areas commonly affected are the perineum, upper thighs or penis. It is highly contagious, whereby early treatment with podophyllin, cryotherapy or cauterly can cure the disease.

One should not forget that there are hundreds of skin diseases that can affect the genital area and if unsure, the patient needs to be referred to a dermatologist for a proper diagnosis. Diseases like Lichen planus, Behcet’s disease or Pemphigus vulgaris can commonly be the cause for genital ulcers. Unspecific rashes in the genital area can include eczema; psoriasis; contact dermatitis; extramammary Paget’s disease; candida and many others.

In our clinic at DISA, we are seeing a growing trend of psychological problems secondary to exposure to STIs and this should not be ignored. After an encounter, many patients get a fright and can end up having penile pre-occupation or vaginal pre-occupation. This is more common in men, where they take regular breaks at work to examine their private parts to ascertain whether something has grown from the time of the last inspection or if there is a rash. These patients make regular visits to their doctors fully convinced that they have caught a disease, and become sexually withdrawn, despite having no clinical signs or negative serological tests. Psychological help through counselling may benefit some.

In conclusion, sexually transmitted infections have been described from antiquity and are here to stay. However with the evolution of the society, availability of information and access to treatment most of the morbidities can be prevented. HIV still remains on top of the list and still requires the most attention. However, the rest of the diseases can be easily managed using the syndromic management guidelines from the department of health.

Table I

Common sexually transmitted and transmissible pathogens

Bacteria	Chlamydia trachomatis Neisseria gonorrhoeae Haemophilus ducreyi Trepanoma pallidum Ureaplasma urealyticum C. Granulomatis Gardnerella vaginalis
Viruses	HIV Herpes simplex virus 1,2 Human papillomavirus Hepatitis B, C Molluscum contagiosum Cytomegalovirus
Protozoa	Trichomonas vaginalis Giardia lamblia
Fungi	Candida albicans
Parasites	Sarcoptes scabiei

Table II

<ul style="list-style-type: none"> <li>• Direct mucosal infection:             <ul style="list-style-type: none"> <li>- Urethritis</li> <li>- Proctitis</li> <li>- Cervicitis</li> <li>- Pharyngitis</li> <li>- Ophthalmia neonatorum</li> </ul> </li> </ul>
<ul style="list-style-type: none"> <li>• Local extension:             <ul style="list-style-type: none"> <li>- Prostatitis</li> <li>- Vesiculitis</li> <li>- Epididymitis</li> <li>- Salpingitis</li> <li>- Pelvic inflammatory disease</li> </ul> </li> </ul>
<ul style="list-style-type: none"> <li>• Disseminated disease:             <ul style="list-style-type: none"> <li>- Arthritis, fever, endocarditis, meningitis</li> <li>- Pustules on the palms and soles</li> </ul> </li> </ul>

Table III

Disease	Incubation time(days)	Clinical lesion	Diagnosis	Organism
Chancroid	3-10	Purulent, multiple ulcers, painful	Culture	H. Ducreyi
Herpes	3-7	Vesicles, erosions, ulcers, painful and recurrent	Tsanck smear, culture, PCR	HSV 1,2
Primary syphilis	10-90	Usually single, painless, indurated ulcer	Serology, Darkfield microscopy	Trepanoma pallidum
Lymphogranuloma venerum	3-12	Transient painless ulcer	Serology	Chlamydia trachomatis
Donovanosis	14-60	Chronic indurated red fleshy ulcer	Smears, Histology	C. Granulomatis

Table IV

	Clinical	Tests
Primary syphilis	Painless chancre, begins as a 2-3mm papule, undergoes necrosis and erodes. Firm, indurated and rarely tender. Occurs on the penile area or around the cervix. Lymphadenophy develops in 1-2 weeks. Heals spontaneously within 3-8 weeks.	Most reliable test is darkfield examination of fluid from the ulcer.  FTA-IgM is positive after 2 weeks.  RPR is a screening test, titres can be positive for life and can be used to evaluate response to therapy. A falling titre shows that the disease is cured. VDRL can also be used for testing.
Secondary syphilis	Systemic, cutaneous and mucosal signs as well as weight loss. Generalised non-pruritic, pink, scaling, papular rash in over 80% of patients. Symmetric, hyperpigmented, oval papules with a collarete scale appears on the palms and	RPR tests and other serology tests are positive.  If the FTA-IgM is positive in an asymptomatic patient, a complete examination is needed.( CSF, Ultrasound of aorta, ophthalmologic exam)

	soles of most patients. Patient can also have alopecia, pigmentary disturbances and anal condyloma lata( highly infectious). Even without treatment, all lesions tend to resolve and go into the latent stage. May never develop further manifestations	
Tertiary syphilis	Grouped red-brown papules, often annular or serpiginous pattern, anywhere on body. Gummas in the palate, nose, pharynx, bones. Periosteitis, Aortic aneurysm, neurological symptoms. Can lead to quaternary syphilis, which includes general paresis and tabes dorsalis.	Serology, CSF and radiological examination.

Table V

<p><b>Physical destruction:</b></p> <ol style="list-style-type: none"> <li>1. Cryotherapy : Use of liquid nitrogen can have up to 50% success rate. It is a simple procedure with two freeze-thaw cycles, leading to wart necrosis. It does have a high recurrence rate over a 3 months cycle.</li> <li>2. Electrocautery: Slightly more painful, however not always practical in the rooms. An area of approximately 2 mm around the wart should also be treated. It has a chance of causing scars and recurrence rate is around 30-40% within 3 months.</li> <li>3. Trichloroacetic acid 70-90% solution is a cheap and effective method to treat genital warts. It is safe in pregnancy, however, can be quite painful. Recurrence rate is similar to other physical methods.</li> <li>4. Laser vaporisation: This is usually performed in theatre and is very costly. A carbon dioxide is usually used. Success rate is similar to the other methods listed above.</li> </ol>
<p>Cytotoxic or Antiviral agents:</p> <ol style="list-style-type: none"> <li>1.Podophyllin or Podophyllatoxin solutions: This is highly effective for warts in the anogenital region. It is applied with a cotton earbud and washed off after 4 hrs. It can be repeated on alternate days. The recurrence rate is around 20-30 % within 3 months.</li> <li>2. Bleomycin injections: Highly effective, painful and costly</li> <li>3. Cidofovir 1% cream: not widely available in South Africa.</li> <li>4. 5- Fluouracil cream can also be used in the genital region. It is a good choice for intra or peri-urethral warts. However, the success rate is around 50% in the region.</li> </ol>
<p><b>Immunomodulatory:</b></p> <ol style="list-style-type: none"> <li>1. Imiquimod : It has been claimed to be very effective from international studies.</li> </ol>

Personal experience of the author has proven it to be inferior to all the above listed modalities.

2. Intralesional injections with candida or mumps antigen : There is not much experience in the local setting. However, studies claim up to 80% clearance with even clearance of distal untreated lesions. Recurrence rate is low.

References:

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