

INTRODUCTION

Sexually Transmitted Infections (STI) are quite prevalent and one of the most common reasons for which patients seek medical advice (more so in Dermatology). Many patients, especially females, do not come forward for consultation and treatment in view of social stigma attached to STI's. This leads to persistent disease and greater chances of spread of disease to sexual partner/partners. In this era of HIV, it has been shown that there are higher chances of spread of the dreaded virus among patients with STI. Managing STI involves syndromic case management and treatment of partner/partners of the patient. Also, treating STI gives opportunity to spread awareness regarding HIV, hepatitis B and counselling regarding safe sexual practices. Physicians must be sensitive enough to consider STI in those who come with classical history and manage these patients at the first instance and also treat the partner/partners, if required. In this chapter, syndromic case management will be discussed. HIV and hepatitis B management will not be discussed here.

SYNDROMIC CASE MANAGEMENT

Syndrome here is a group of symptoms and signs which are caused by more than one organism. Syndromic management leads to prompt identification of patients and helps in fast treatment without relying much on laboratory investigations. This is especially helpful in primary health care centres where laboratory services might not be accessible. Syndromic management involves correct identification of a syndrome based on history and examination and laboratory investigations (wherever required or accessible) and initiating early management of patient and partner/partners. Emphasis is on single dose treatment and Directly Observed Therapy (DOT) wherever feasible. Counselling regarding timely follow up, safe sexual practices, change in high risk behaviour and usage of condoms is done. All the attendees are screened for syphilis and HIV. For a patient presenting in a tertiary care centre or being referred from a primary health care set up due to non resolution of symptoms, investigations to find out etiological agent and co-morbidities is done. Here, treatment beyond syndromic management is done. In this chapter, we are discussing only syndromic management. For management of individual STI, CDC guidelines can be followed.

History

History should preferably be taken in a language comprehensible by the patient. Patient might not

forthrightly tell his/her symptoms. The physician must build up the confidence, be empathetic, ensure privacy and maintain confidentiality. If a couple approach together, it is advisable to assess them separately. The most common symptoms in STI in males and females are listed in Table 1. Also, history of other co-morbid conditions like diabetes, any urethral catheterization in the past, any past STI, drug allergies, ongoing pregnancy must be sought. Menstrual, contraceptive and obstetric history should also be sought. History regarding sexual behaviour is a must and should focus on recent change in partner, having multiple sexual partners, male having sex with male (MSM), type of sex (oral, vaginal, anal) and date of last intercourse. History of symptoms in partner/partners must be asked for. Occupational history (male/female sex worker, seamen, workers in hospitality industry, transport workers, migrant workers) is essential as is the history of blood transfusions, tattooing, injectable substance abuse.

Examination

Genital examination along with draining lymph node examination is a must. Swelling of testes or vulva must be observed. Both bimanual and Per Speculum examination is essential in females with discharge to rule out cervicitis. Rectal examination especially, in MSM or in patients with history of anal sex should be carried out. In those with history of oral sex and oral symptoms, oral examination is

Table 1: Symptoms in STI

Females	Males
Dysuria, frequency of urination	Dysuria, frequency of urination
Vaginal discharge	Genital ulceration
Genital ulceration	Urethral discharge
Abnormal growth or mass in genital area	Abnormal growth or mass in genital area
Inguinal lymphadenopathy	Acute scrotal swelling, pain
Lower abdominal pain	Inguinal lymphadenopathy
Dyspareunia	Genital itching, balanitis
Vulval Itching	Dyspareunia
Perianal pain	Perianal pain
Anal discharge	Anal discharge
Pharyngitis	Pharyngitis

essential. A gross head to toe examination should be done where indicated (suspecting disseminated gonococcal infection, history of rash, history of arthritis).

Laboratory Investigations

Use laboratory investigations, where available to find etiological agent. However, treatment should not be deferred for want of etiological diagnosis. Gram stain of discharge, wet mount, KOH mount are helpful. All patients must be screened for syphilis and HIV. So, Rapid Plasma Reagin (RPR) and referral to Integrated Counselling and Testing Centre (ICTC) for HIV testing must be done.

EVALUATION AND MANAGEMENT OF INDIVIDUAL SYNDROMES

After thorough history taking, examination and laboratory tests (where available/required) a syndromic diagnosis must be reached and further evaluation and treatment should be done according to the syndromic diagnosis reached.

1. Management of Vaginal Discharge Syndrome (Vaginitis)— Most common organisms causing this are *Trichomonas vaginalis* (TV), *Candida albicans*, *Gardnerella vaginalis*, *Mycoplasma*, *Ureaplasma* and certain uncultivable anaerobes. The most common cause is Bacterial Vaginosis (BV). A thorough history and examination is mandatory as mentioned above. Examination must include PS examination prior to bimanual examination to rule out cervicitis. Colour of discharge might give clue to etiological agent. For example, green frothy discharge is suggestive of Trichomoniasis, curdy white discharge is suggestive of Candidiasis. Laboratory investigation (if available) of discharge will reveal *Trichomonas* on wet mount, *Candida* on KOH mount and Clue cells on Gram's Stain suggesting Bacterial Vaginosis. Treatment of patient (TV+BV) involves single dose of Secnidazole 2 gm orally or Tab. Tinidazole 500 mg orally, twice daily for 5 days or Tab. Metronidazole 400 mg twice a day for 7 days. If suspecting *Candida* infection, give Fluconazole 150 mg orally, single dose or local Clotrimazole 500 mg vaginal pessary once. Douching is not recommended. For the partner, if symptomatic, give same treatment as the patient. However, if asymptomatic, and if the patient has BV or *Candida*, there is no need of treatment. However, if the patient does not improve after the therapy, then even asymptomatic partner needs treatment. For TV, treat all partners of patient in last 30 days with the above protocol and patient and partner/partners to maintain sexual abstinence during course of treatment. For pregnant patients, give only metronidazole and local clotrimazole. Follow up after 7 days of treatment is must to look for cure or for persistence of symptoms. If the symptoms persist, referral to higher centre is done for further investigations and treatment.
2. Management of Cervical Discharge Syndrome (Cervicitis)— *N. gonorrhoeae*, *Chlamydia trachomatis*, *Trichomonas*, *Herpes simplex*, *Human Papilloma Virus* (HPV) are the etiological agents implicated in cervicitis. PS examination in patient with discharge is a must to rule out cervicitis. PS may reveal either mucopurulent discharge through cervical os and inflamed cervix or sustained endocervical bleeding on gentle passage of cotton swab through the os. Laboratory investigation (if available) should include wet mount and Gram stain examination of discharge to find out the etiological agent. A leucocyte count >10 WBC per high power field is termed leucorrhoea and is suggestive of gonococcal and chlamydial infection of the cervix. Treatment of patient involves giving Tab. Cefixime 400 mg single dose along with Tab. Azithromycin 1 gm orally, single dose. There should be no douching. All partners of the patient in last 30 days need to be treated with the above regimen. Abstinence during course of therapy is a must. Follow up is done after one week to assess response and if symptoms persist, further evaluation and referral to higher centre is required. Pregnant women are to be given same regimen as non pregnant women. If speculum examination is not available or if the patient does not give consent for it, then she needs to be treated for both vaginitis and cervicitis.
3. Management of Urethral Discharge/ Burning Micturation in Males— *N. gonorrhoeae*, *C. trachomatis*, *Trichomonas*, *Mycoplasma genitalium*, *Herpes Simplex Virus* (HSV), enteric bacteria and Adenovirus are organism implicated in causing this symptom. History and examination of patient is a must. Examination might not reveal urethral discharge. At this juncture, urethral massage on ventral side of penis towards the meatus needs to be done. Apart from Gram stain and wet mount, number of neutrophils in the discharge needs to be ascertained. More than 5 neutrophils per oil immersion field (1000X) in the discharge smear or >10 neutrophils in the sediment of first void urine is suggestive of non-gonococcal urethritis. Treatment of patient comprises of Tab. Cefixime 400 mg orally, single dose along with Tab. Azithromycin 1 gm orally, single dose or Cap. Doxycycline 100 mg twice a day for 7 days. Review patient after seven days. If symptoms persist, treat for *Trichomonas* infection (as mentioned in treatment of vaginitis syndrome). If the symptoms still persist, then further evaluation is required at a higher centre. All sexual partners of the patient in last 60 days of onset of symptoms should be evaluated and treated for urethral discharge syndrome.
4. Management of Painful Scrotal Swelling (PSS) in males-- *N. gonorrhoeae* and *C. trachomatis* are the most common organisms implicated. Tubercular

and filarial genital involvement form important differential. Also, trauma, hydrocoele, torsion should be ruled out. Laboratory investigation (if available) should include Gram staining of urethral smear or of sediment of first void urine. Treatment comprises of Tab. Cefixime 400 mg orally, single dose along with Tab. Azithromycin 1 gm orally, single dose. Supportive treatment in the form of scrotal support, T-bandage and analgesics is also essential. All the partners of the patient in the last 60 days from onset of symptoms need to be evaluated and treated. Sexual abstinence is advised during the course of treatment. Follow up is done after 7 days and if symptoms persist further evaluation is done.

5. Management of Inguinal Bubo-- Bubo is swelling in inguinal region which may be painful. There may be history of preceding ulcer but it is not evident at the time of presentation. *C. trachomatis* serovars (L1, L2, L3) which cause Lymphogranuloma Venereum (LGV) and *Hemophilus ducreyi* which cause Chancroid are etiological agents for bubo. Treatment comprises of Cap. Doxycycline 100 mg twice a day for 21 days along with Tab. Azithromycin 1 gm orally, single dose. Never drain a bubo as there are high chances of fistula formation, only aspirate if required. Sexual abstinence during course of treatment is advised. All the partners of patient in last 90 days from onset of symptoms need to be treated as above. Follow up patient every week for three weeks and if there is no resolution of symptoms, evaluation further in a higher centre is advised.
6. Management of Genital Ulcer Disease Non-herpetic Syndrome-- *Treponema pallidum*, *H. ducreyi*, *Klebsiella granulomatis* and *Chlamydia trachomatis* are common etiological agents. *Klebsiella granulomatis* causes Granuloma Inguinale. Examination gives clues to diagnosis. Painless ulcer with firm lymph nodes suggests syphilis, painless ulcer without lymph nodes suggests Granuloma Inguinale, transient ulcer followed by painful enlarged lymph nodes (Bubos) is suggestive of LGV. Treatment comprises of Inj. Benzathaine Penicillin 2.4 million IU intramuscular, single dose along with Tab. Azithromycin 1 gm orally, single dose. For those allergic to penicillin, Cap. Doxycycline 100 mg twice a day for 15 days or Tab. Azithromycin 2 gm orally, single dose is given. All the partners in last 3 months from onset of symptoms should be treated with above regimen. Sexual abstinence is advised during course of treatment. Pregnant women must be treated on same lines as above but if pregnant female is allergic to penicillin, erythromycin should be used. Follow up is done after one week and if no resolution of symptoms, referral is done to higher centre. Further follow up is done at 3, 6, 12 and 24 months to rule out syphilis by doing non-treponemal test (RPR/VDRL).
7. Management of Genital Ulcer Disease Herpetic Syndrome-- Caused by HSV. Examination shows presence of vesicles and multiple, painful ulcers. For first episode give Tab. Acyclovir 400 mg three times a day for 7 days. For recurrences, give same regimen. Sexual abstinence is advised during course of treatment or till the lesions heal. Follow up is done after 7 days and if no relief, referral to higher centre is done. If the partner has no active lesion, he/she does not require treatment. Pregnant women should be treated with same regimen. If the pregnant lady has genital herpes and is in labour, Caesarean section should be performed. If there is a doubt regarding type of ulcer on examination, treat for both syndromes.
8. Management of Lower Abdominal Pain (LAP) Syndrome-- *N. gonorrhoeae*, *C. trachomatis*, *Gardnerella*, *Bacteroides*, *Mycoplasma*, Gram positive cocci are the etiological agents implicated. LAP can also occur due to endometritis, pelvic peritonitis, salpingitis, tubo-ovarian abscess. LAP syndrome consists to lower abdominal pain, fever, dysmenorrhoea, dyspareunia, dysuria, low back ache, vaginal discharge (number and intensity of symptoms varying). Cervical motion tenderness, uterine tenderness, adnexal tenderness on pelvic examination apart from raised body temperature, abnormal vaginal discharge, elevated ESR and CRP suggest LAP syndrome when no other disease as cause of lower abdominal pain is identifiable. Investigations (where available) must include wet mount, Gram stain, complete blood counts, ESR, CRP, urine routine and microscopy. Pregnancy test must be done to rule out ectopic pregnancy. In the absence of tubo-ovarian abscess, treatment comprises of Tab. Cefixime 400 mg orally, single dose along with Tab. Metronidazole 400 mg orally, twice daily for 14 days along with Cap. Doxycycline 100 mg twice a day, orally for 14 days. Ibuprofen is prescribed for first 3-5 days to reduce pain and inflammation and Tab. Ranitidine is given to prevent gastritis. If the symptoms do not subside in 3 days or worsen, the referral to higher centre is done. Referral is also sought if there is suspicion of tubo-ovarian abscess at presentation or if the syndrome is due to surgical cause like appendicitis or peritonitis. Patient is followed after 3, 7 and 14 days of starting treatment. Male partners of patients in last 60 days from onset of symptoms should be examined and treated. Sexual abstinence is advised during course of therapy.
9. Management of other STI's—
 - A. Anogenital warts: Caused by HPV. Manifest as single or multiple soft, painless, pink coloured "cauliflower" like growth which are present on genitalia, anus. Treatment of perianal and penile

warts comprises of chemical cauterization with 20% Podophyllin application over warts and weekly treatment till complete resolution of lesions. Another agent used for chemical cauterization is Imiquimod (5%) cream which is applied over warts at bed time and washed in morning with application being done three times a week for 12-16 weeks. Physical cauterization by cryotherapy, electrocautery or surgical excision is also modality available for treatment. For vaginal warts, apart from the above, Trichloroacetic acid (TCA) (50-75%) is also used for treatment. For cervical warts, podophyllin is contraindicated and cryotherapy is treatment of choice. Biopsy of cervical wart to rule out malignancy must be carried out. For urethral warts, 5-fluorouracil applied weekly for 3 weeks may eradicate the lesions. For scrotal, vulval skin and pubic areas, TCA, cryotherapy or electro cautery are modalities of treatment. It is noteworthy that types of HPV causing genital infections are different from the types causing ano-genital cancers. HPV testing is not essential in partners of patients with warts. Also, asymptomatic partners do not require treatment. However, patients with warts are advised sexual abstinence. Patient and partner must be screened for other STI's.

- B. Molluscum contagiosum: Caused by Pox virus. The lesions are multiple, smooth, glistening, globular papules, with a cheesy material inside. Lesions regress without treatment in 9-12 months. Treatment comprises of opening of lesion by fine needle or scalpel and touching the inner walls with 25% phenol or 30% TCA.
- C. Pediculosis pubis: Caused by lice Phthirus pubis. Lesions comprise of red papules with tiny central clot with local urticaria. Eczema and impetigo may be present. Treatment comprises of application of 1% permethrin cream and washing of after 10

minutes. Clothing and bed linen used by patient needs washing and drying. Retreatment is required after 7 days if lice/eggs are found on skin/hair junction. Sexual partner also needs treatment.

- D. Scabies: Caused by mite *Sarcoptes scabiei*. Symptoms are of severe itching specially at night. Eczema and super added bacterial infections can occur. Diagnosis is made by demonstrating burrow over the skin. Treatment is by applying permethrin cream (5%) to all body parts below neck after a warm scrubbing bath and washing of the cream after 8-14 hours. Benzyl benzoate (25%) can also be used. Clothing and bed linen which have been used by patients need to washed and well dried. All members of the family need treatment. Sexual partner needs to treated on same lines

CONCLUSION

STI need urgent treatment not only of patient but also of partner (where indicated). Syndromic approach is used to manage STI with laboratory evaluation not being a mandatory thing prior to initiation of treatment. Counselling regarding safe sexual practices, condom use and HIV must be done at the first contact. Testing for syphilis and HIV to be done for all patients at first visit. Need of the hour is to counsel population to shed the social stigma tag and approach the available health care at the earliest.

REFERENCES

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