ABC of Sexually Transmitted Diseases

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SYPHILIS: CLINICAL FEATURES

Extent of the problem

The advent of penicillin made a dramatic and rapid impact on the incidence of early infectious syphilis throughout the world in the late 1940s. The number of cases of syphilis seen in clinics is now less than a fifth of that seen during the peak just after the second world war (27 761). Rates for syphilis are higher in men than in women. This disparity is explained by the fact that in the United Kingdom most primary and secondary cases of syphilis now occur among homosexuals.

Classification

Time after exposure	
9-90 days	Early infectious
6 weeks-6 months (4-8 weeks after primary lesion)	Primary
2 years	Secondary
≥2 years	Latent (early)
3-20 years	Latent (late)
	Late non-infectious
	Neurosyphilis
	Cardiovascular syphilis
	Gummatous syphilis

Sites of primary syphilis	
Genital	Extragenital
Shaft penis	Lip
Coronal sulcus	Tongue
Glans penis	Mouth, tonsil, pharynx
Prepuce	Fingers
Fraenum	Eyelid
Intrameatal	Nipple
Anal margin/canal	Any part of skin or mucous membranes
Rectum	
Labia minorum and majora	
Fourchette	
Clitoris	
Vaginal wall	
Cervix	

Acquired syphilis has been classified traditionally into early infectious and late non-infectious stages. The arbitrary cut off point between these is usually two years.

Primary syphilis—The incubation period for primary syphilis is 9 to 90 days (mean 21 days). Lesions appear at the site of inoculation; these sites may sometimes be extragenital. The lesion is normally solitary and painless. It first appears as a red macule which progresses into a papule and finally ulcerates. This ulcer is usually round and clean with an indurated base and edges. Inguinal lymph nodes are moderately enlarged, rubbery, painless, and discrete. The primary lesions will heal within three to 10 weeks and may go unnoticed by the patient. Lesions on the cervix, rectum, anal canal, and margin may in particular be asymptomatic.

Secondary syphilis—The lesions of secondary syphilis usually occur four to eight weeks after the appearance of the primary lesion. In about one third of cases the primary lesion is still present. The lesions are generalised, affecting skin and mucous membranes.

The skin lesions are usually symmetrical and non-itchy. They can be macular, papular, papulosquamous, and very rarely pustular. The *macular* lesions are usually the first to appear as rose pink, rounded, discrete lesions (0.5-1 cm in diameter) on the shoulders, chest, back, abdomen, and arms. The *papular* lesions are coppery red and the same size as the macules. They may occur on the trunk, palms, arms, legs, soles, face, and genitalia. (Skin lesions are commonly a mixture of macular and papular (maculopapular).)

Primary chancre of penis, vulva, and anus.

Lesions of secondary syphilis

Skin:	Macular	} maculopapular
	Papular	
	Condylomata lata	
	Papulosquamous	
	Pustular	
Mucous membranes:	Erosions	

In warm opposed areas of the body (anus, labia) papular lesions can become large and coalesce to appear as large fleshy masses (condylomata lata). The *papulosquamous* lesions are found when scaling of the papules occurs and can be seen in association with straightforward papular lesions. If papulosquamous lesions occur on the palms or soles they are sometimes described as psoriaform. *Pustular* lesions are rare and occur when the papular lesions undergo central necrosis. *Mucous membrane* lesions are shallow, painless erosions which usually appear in association with papular skin lesions and affect the mucous surface of lips, cheeks, tongue, fauces, pharynx and larynx, nose, vulva, vagina, glans penis, prepuce, and cervix. They have a greyish appearance and are sometimes described as "snail track" ulcers.

The lesions of skin and mucous membrane may be associated with non-specific constitutional symptoms of malaise, fever, anorexia, and generalised lymphadenopathy. The secondary stage is one of bacteraemia, and any organ may show evidence of this—for example, hepatitis, iritis, meningitis, and optic neuritis with papilloedema.

Clinical features of secondary syphilis

Skin lesions	75-80%
Mucous membrane lesions	30%
Generalised lymphadenopathy	50-60%
Arthritis, arthralgia, periostitis	} Rare (<10%)
Hepatitis	
Glomerulonephritis and nephrotic syndrome	
Iridocyclitis and choroidoretinitis	
Neurological disease (meningitis, cranial nerve palsies)	
Alopecia	

Features of secondary syphilis: maculopapular rash on hands and chest and condylomata lata.

Latent syphilis—The latent period of syphilis follows the secondary stage. This latent period is divided into early and late. Early means that the disease has been present for less than two years and late for more than this time. The term latent means that there are no overt symptoms or signs of the disease and that the patient has never been treated. The condition is diagnosed from positive results to serological tests; no clinical evidence of early or late syphilis in any system; normal results on chest radiography and screening; and examination of cerebrospinal fluid to exclude cardiovascular syphilis or neurosyphilis. (Diagnosing syphilis will be covered in next week's article.)

About 65% of patients with untreated syphilis will not develop late clinical sequelae of the disease. About 10% will develop neurological, 10% cardiovascular, and 15% gummatous lesions. Late syphilis is now rare.

Neurosyphilis

Neurosyphilis is classified into asymptomatic, meningovascular, and parenchymatous (general paralysis of the insane and tabes dorsalis). The widespread use of antibiotics for other unrelated conditions has probably resulted in neurosyphilis which does not always fit the older classical clinical forms and descriptions.

Asymptomatic—As the name suggests, there are no neurological symptoms or signs and the diagnosis is based entirely on changes in the cerebrospinal fluid and serum.

Meningovascular disease can present at both early and late stages of syphilis. Patients can present with acute meningeal involvement during the secondary stages of the disease, often coinciding with the development of skin lesions. Headache is the main symptom. Signs of meningitis are found with third, sixth, and eighth cranial nerve involvement, papilloedema, and, rarely, homonymous hemianopia or hemiplegia. Late meningovascular syphilis presents less acutely but headaches may still be a presenting symptom. Cranial nerve palsies (third, sixth, seventh, and eighth) and pupillary abnormalities are seen. The pupils are small and unequal in size and react to accommodation but not light (Argyll Robertson pupils). Cerebral and spinal cord (anterior spinal artery) vessels may be affected. Epilepsy, confusion, aphasia, monoplegia, hemiplegia, or paraplegia, are just some of the ways in which late meningovascular syphilis can present.

Parenchymatous neurosyphilis may present as general paralysis of the insane, tabes dorsalis, or, rarely, a combination of the two. General paralysis of the insane is the result of a chronic progressive meningoencephalitis with resulting cerebral atrophy 10-20 years after the original primary infection. Manifestations of the disease are a poor memory, lack of judgment and insight, delusions, confusion and mood swings, and sometimes convulsions. The signs can include a fine tremor of the lips, tongue, and hands; dysarthria; occasionally Argyll Robertson pupils and optic atrophy; hyperactive tendon reflexes; and extensor plantar responses (due to lesions of the pyramidal tract). Late in the disease the patient may suffer from dementia, a spastic paraplegia, and urinary and faecal incontinence.

Tabes dorsalis is characterised by increasing ataxia, failing vision, sphincter disturbances, and attacks of severe pains. These pains are described as "lightening" since they occur as acute stabbing pain commonly in the legs. Attacks are fleeting or last a few days and classically occur at right angles to the limb. Paraesthesiae, incontinence, impotence, and tabetic crises may occur. These crises usually occur acutely and affect the stomach, rectum, bladder, urethra, kidneys, and larynx. The gastric crisis is the most common and the symptoms of epigastric pain and vomiting can be mistaken for an acute surgical abdomen.

General paralysis of the insane	
Symptoms	
Early	Late
Irritability	Defective judgement
Fatigability	Lack of insight
Inefficiency	Depression or euphoria
Personality changes	Confusion and disorientation
Headaches	Delusions
Impaired memory	Seizures
Tremors	Transient paralysis and aphasia
Signs	
Expressionless facies	
Tremor of lips, tongue, and hands	
Dysarthria	
Impairment of handwriting	
Hyperactive tendon reflexes	
Pupillary abnormalities	
Optic atrophy	
Convulsions	
Extensor plantar responses	

Tabes dorsalis	
Symptoms	Signs
Lightning pains	Argyll Robertson pupils
Ataxia	Absent ankle reflexes
Bladder disturbance	Absent knee reflexes
Paraesthesiae	Absent biceps and triceps reflexes
Tabetic crises	Romberg's sign
Visual loss	Impaired vibration sense
Rectal incontinence	Impaired position sense
Deafness	Impaired sense of touch and pain
Impotence	Optic atrophy
	Ocular palsies
	Charcot's joints

The signs of tabes dorsalis are largely due to degeneration of the posterior columns: absent ankle and knee reflexes (rarely biceps and triceps), impaired vibration and position sense, and a positive Romberg's sign. Argyll Robertson pupils are found in half of the cases and optic atrophy in a fifth. Charcot's arthropathy is rare, found in fewer than 10% of cases. The joints (knee, hip, ankle, spine, feet) are grossly disorganised and hypermobile with osteophyte formation and loose bodies in the joint. Finally, perforating ulcers of the feet can be found.

Cardiovascular syphilis

Cardiovascular syphilis most commonly occurs in large vessels, but medium and small sized ones may also be affected. The aorta is affected by an aortitis (with or without coronary ostial stenosis), an aneurysm of the ascending part, and aortic incompetence. Aneurysms of innominate, carotid, and subclavian vessels have also been described. Early changes are symptomless. Advancing aortitis may result in dull substernal pain or angina whereas aortic incompetence can present with acute left ventricular failure, paroxysmal nocturnal dyspnoea, and angina. The symptoms of aortic aneurysm vary depending on site; if in the ascending part (the commonest site) there may be dull substernal pain or angina and left ventricular failure. The symptoms of an aneurysm affecting the arch usually result from the pressure on structures within the superior mediastinum. Thus, stridor and cough (trachea), dysphagia (oesophagus), breathlessness (left bronchus), hoarseness (left recurrent laryngeal nerve), and Horner's syndrome (sympathetic chain) may occur. Finally, pressure on the superior vena cava can result in congested veins in the head and neck and cyanosis. The signs of cardiovascular disease are no different from those of aortic incompetence and aneurysms from other causes.

Gummatous syphilis

Gummas are granulomatous lesions appearing three to 12 years after the primary infection. Gummas may occur on the skin or mucous membranes and in bone or viscera. Skin lesions are usually nodular. They can occur anywhere on the skin and appear as small groups of painless lesions which are indolent, firm, coppery red, and about 0.5-1 cm in diameter. If subcutaneous tissue is affected the lesions start as smooth hard swellings which eventually break down into well circumscribed punched out ulcers which, when they heal, leave typical tissue paper scarring. These occur on the leg, face, and scalp. Lesions in mucous membrane appear as punched out ulcers on the hard and soft palate, uvula, tongue, larynx, pharynx, and nasal septum. Bone and visceral gummas are extremely rare, affecting the tibia, skull, clavicle, sternum, and femur, liver, brain, oesophagus, stomach, lung, and testes.

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