PHLYCTENULE CONJUNCTIVITIS OF TUBERCULOSIS (A CASE REPORT)

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BACKGROUND

Phlyctenule conjunctivitis of tuberculosis is a very rare case. The diagnosis is very difficult because always not considered in conjunctivitis unless which is not improved with a number of treatments, contact history with tuberculosis patient is not always clear and culture material is not available to confirm the diagnosis.

OBJECTIVE

To report the difficulty of diagnosing phlyctenule conjunctivitis of tuberculosis

CASE

W, a 9-year-old girl was consulted from the Ophthalmologic Outpatient Clinic to the Pediatrics Respirology Outpatient Clinic with conjunctivitis. The main complaint was redness in her left eyes. The lesion were redness and itching for 2 weeks. The lesion was recurrent since 1 year ago. The body weight didn't increase for 1 year. The patient was taken to several physicians and was given oral and topical medication, but there weren't improvement. Physical examination at first revealed: an alert girl the body weight 22kg and height 125cm. BCG scar was positive. Enlargement of submandibular lymph nodes were present, multiple with diameter 1cm, moveable, and no painless on palpation. Examination of left eyes revealed white nodule with a focal area of inflamed conjunctival tissue. The white nodule was 0.5cm diameter. Laboratory examination revealed hemoglobin of 14.2 g/dl, white blood cell count 6.000/mm^3, and platelets count was normal limit. LED was 20/hour. Her chest x-rays showed normal size and shape of the heart. The lung was normal. Tuberculin skin test was positive with the diameter 20mm and turgid. The tuberculosis score was 5. The working diagnosis was phlyctenular conjunctivitis tuberculosis. Multidrug treatment was administered with rifampicin 10mg/kgBW a day orally, isoniazid 10mg/kgBW, and pyrazinamide 25mg/kgBW a day orally for two months. The second months after intensive treatment, patient no complain. Physical examination, the body weight increased. The phlyctenularis conjunctivitis in the left eye were minimal. Isoniazid and rifampicin treatment were continued. The phlyctenularis conjunctivitis in the left eyes and itching didn't revealed and the body weight increased after 6 months of treatment.

Figure 1. White nodule with focal area of inflamed conjunctival tissue

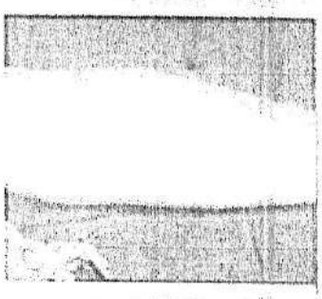

Figure 2. The tuberculin skin test

Figure 3. The patient post 6 months treatment

CONCLUSION

The diagnosis of tuberculosis phlyctenule conjunctivitis should be considered if malnutrition and induration of tuberculin skin test were found in children with recurrent conjunctivitis in tuberculosis endemic area.

Keywords: phlyctenule conjunctivitis, tuberculosis, anti tuberculosis drugs

Phlyctenule conjunctivitis of tuberculosis.
Kusdwijono

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Introduction

Ocular tuberculosis is uncommon in children. When it does occur, the conjunctiva and cornea are the areas most often involved. Unilateral redness and lacrimation are usually associated with the enlargement of the preauricular, submandibular, or cervical lymph nodes. The conjunctiva tuberculosis are phlyctenular conjunctivitis.[1]

Conjunctival phlycten is a small pinkish white elevated nodule situated in the midst of a hyperemic area. Apart from the surrounding zone of hyperemia, the rest of the conjunctiva remains clear. Most often the nodule is on the limbus and a leash of blood vessels are found running from it in a triangular fashion.[1]

It is difficult to estimate the incidence of ocular disease in the population with tuberculosis. The experience of one sanatorium in the United States between the years 1940 and 1966 was that 1.4% of 10.524 patients were treated for ocular tuberculosis.[2] Reports of large series of cases from Western Europe became rare once social recovery from World War II had been achieved but, as mentioned before, tuberculosis is more common in Eastern Europe, and reports of ocular involvement still appear in appreciable numbers. In the United States the disease is rare and seen mainly in malnourished immigrants.[3] Report from Cipto Mangunkusumo hospital, 1 % of patient extrapulmonary tuberculosis is phlyctenular conjunctivitis.[4]

Phlyctenular of tuberculosis are very hard to diagnose because there is no material available for culture, the chest radiograph is usually normal, and the adult source of infection often cannot be traced.[1] There is often a significant delay in the diagnosis of ocular TB because it is not always considered in the differential diagnosis of nonhealing. In addition, the demonstration of M. tuberculosis or AFB in tissue culture and smear, respectively, can be formidably difficult. A diagnosis of ocular TB is suspected on the basis of clinical history, physical and laboratory examination, on typical histological findings, and exclusion of other etiologies. Another diagnostic tool that has been reported but not often used is a trial of antituberculous treatment for a period of 6 weeks in the management of difficult cases. [1,3]

The purpose of this paper is to report a rare case of phlyctenular conjunctivitis tuberculosis focusing in diagnosis.

Case Report

W, an 9-year-old girl was consulted from the Ophthalmologic Outpatient Clinic to the Pediatrics Respirology Outpatient Clinic with conjunctivitis. The main complaint was redness in her left eyes. The lesion were redness and itching for 2 weeks. The lession were recurrent since 1 year a go. There weren't history of trauma, lacrimation, eye discharge, pain, chemosis, loss of vision, chronic cough, chronic fever, dizziness, vomiting and seizure. The body weight didn't increase for 1 year. Her urination and defecation were normal. Her daily activities were normal. The patient was taken to several physicians and was given oral and topical medication, but there weren't improvement. There weren't TB contact, allergy history, and atopic history in her family. She had a complete immunization.

Physical examination at the first visit revealed: an alert girl the body weight 22 kg and height 125 cm (IBW : 28 kg, % IBW : 88 %). The heart and lung were normal. BCG scar was positive. Enlargement of submandibula lymphonodes were present, multiple with diameter 1 cm, moveable, and no painless on palpation. Neurological examination was within normal limits.

Examination of left eyes revealed white nodule with a focal area of inflammed conjunctival tissue. The rest of the conjunctiva remains clear. The white nodule was 0,5 cm diameter.

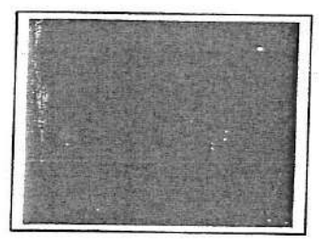

Figure 1. White nodule with a focal area of inflamed conjunctival tissue

Laboratory examination revealed hemoglobin of 14.2 g/dl, white blood cell count 6000/mm^3 , and platelets count was normal limit. LED was 20/hour. Her chest x-rays showed normal size and shape of the heart. The lung were normal.

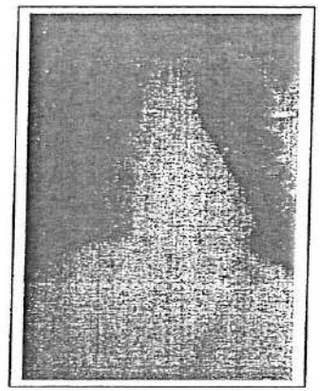

Figure 2. Normal Chest X-Ray

The tuberculin skin test was positive with the diameter 20 mm and turgid. The tuberculosis score was 5.

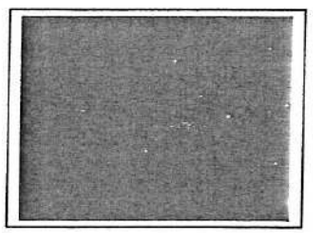

Figure 3. The tuberculin skin test

Based on the history, clinical manifestations, laboratory findings, supported with the tuberculin skin test the patient, the working diagnosis was phlyctenular conjunctivitis tuberculosis. Multidrug treatment for tuberculosis was administered with rifampicin 10mg/kgBW a day orally, isoniazid 10mg/kgBW, pyrazinamide 25mg/kgBW a day orally for two months.

The second months after intensive treatment, patient no complain. Physical examination, the body weight increased. The phlyctenularis conjunctivitis in left eyes was minimal. The treatment isoniazid and rifampicin were continued.

The phlyctenularis conjunctivitis in left eyes and itching didn't revealed and the body weight increased after 6 months anti tuberculosis treatment.

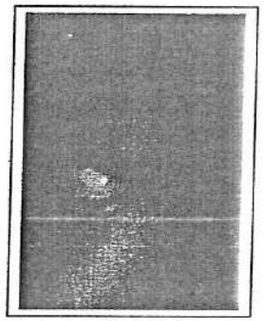

Figure 4. The patient post 6 months treatment

Discussion

Recurrent conjunctivitis in her left eye for 2 weeks was the main complaint. The lession were recurrent since 1 year a go. The red eye is important to determine which tissues are involved. Red eyes may be caused by local factors, intraocular disease, or systemic problems.[5] The red eyes is commonly caused of inflammation of conjunctiva (conjunctivitis). Reccurent conjunctivitis may be infectious or non infectious.[5,6]

The non infectious reccurent conjunctivitis can be caused of allergen and pterygium. Allergic conjunctivitis is a relatively benign ocular disease that causes significant suffering and use of healthcare resources, although it does not threaten vision. Ocular allergy is estimated to affect 20 percent of the population on an annual basis, and the incidence is increasing. Allergic conjunctivitis is predominantly a disease of young adults, with an average age of onset of 20 years of age. Symptoms tend to decrease with age. Approximately one-half of patients have a personal or family history of other allergic conditions such as allergic rhinitis, atopic dermatitis, and asthma. Allergic eye disease primarily affects the conjunctiva. The signs and symptoms include itching, tearing, conjunctival edema, hyperemia, watery discharge, burning, and photophobia. Eyelid edema is also common. Symptoms are usually bilateral; however, one eye can be affected more than the other.[7]

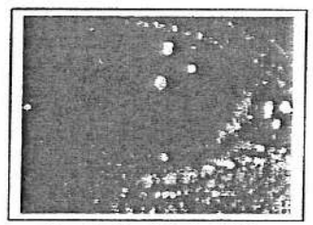

Figure 5. Allergic Conjunctivitis.

In most cases, routine ocular evaluation reveals pterygia in asymptomatic individuals or in patients who present with cosmetic concern about a tissue "growing over the eye." In some instances, the vascularized pterygium may become red and inflamed, motivating the patient to seek immediate care. In other cases, the irregular

ocular surface can interfere with the stability of the precorneal tear film, creating a symptomatic dry eye syndrome. Rarely, the pterygium may induce irregular corneal warpage, or even obscure the visual axis of the eye, resulting in diminished acuity. Clinical inspection of pterygia reveals a raised, whitish, triangular wedge of fibrovascular tissue, whose base lies within the interpalpebral conjunctiva and whose apex encroaches the cornea. The leading edge of this tissue often displays a fine, reddish-brown iron deposition line (Stocker's line). The vast majority of pterygia (about 90 percent) are located nasally. These lesions are more commonly encountered in warm, dry climates, or in patients who are chronically exposed to outdoor elements or smoky/dusty environments.[8]

Figure 6. Pterygium

The main complaint of patient was redness in her left eyes. The lesion were redness and itching for 2 weeks. She was complaint itching in her left eyes. The lession were recurrent since 1 year a go. There weren't history of trauma, allergy history and atopic history in her family of other allergic conditions such as allergic rhinitis, atopic dermatitis, and asthma.. The patients weren't complaint tearing, conjunctival edema, hyperemia, watery discharge, burning, and photophobia. Clinical inspection weren't revealed a raised, whitish, triangular wedge of fibrovascular tissue. Based history and clinical examination non infectious conjunctivitis (allergy and pterygium) are exclude.

The infectious recurrent conjunctivitis can be caused of pingueculitis and phlyctenular conjunctivitis. Pingueculitis are characterized by yellowish, slightly raised, interpalpebral lipid-like deposits in the nasal and temporal limbal conjunctiva. They are

found frequently in individuals who are middle-aged and who experience chronic exposure to the sun. There is no predilection for sex or race. In most cases, pingueculae are an ancillary finding, causing little, if any, ocular symptoms. Frequently, pingueculae can lead to the formation of pterygia. Both pingueculae and pterygia can become vascularized and inflamed, and may be associated with corneal punctate epitheliopathy and corneal dellen (corneal thinning secondary to dryness). Pingueculitis occurs when a pinguecula becomes acutely inflamed, vascularized, red, irritated and highly symptomatic. Pinguecula formation is typically seen in the older population and is considered by most researchers to be a conjunctival degenerative processes initiated by exposure to noxious environmental stimuli and UV light. The initial lesion is thought to result from chronic solar radiation, which alters the collagen and elastic tissues of the conjunctival stroma and leads to elastotic degeneration and deposition of abnormal elastic fibers in the conjunctival substantia propria. Once a pinguecular elevation forms-depending on its size-the tear film may become thin and discontinuous in that zone, producing a bed of dryness.[9]

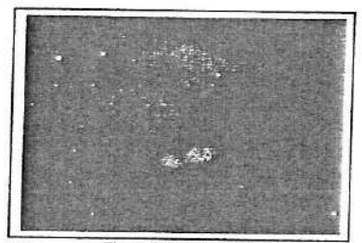

Figure 7. Pingueculitis

Phlyctenular is characteristic nodular affection occurring mainly in children as an allergic response of the corneal and conjunctival epithelium to endogenous toxin to which the tissue has become sensitized. Phlycten means Blister. Its hallmark is a discrete, raised, irritating, unilateral phlyctenule lesion with surrounding hyperemia. Phlyctenular is characterized by a yellowish-white nodule seen within a focal area of inflammed conjunctival tissue. Phlycten is frequently associated with Staphylococcal aureus in developed countries and is classically associated with Mycobacterium

tubercolosis in malnourished children in areas around the world with endemic tuberculosis. Tuberculosis can be a causative agent, especially in malnourished children aged 5 to 10 years.[10]

Phlycten conjunctivitis Staphylococcus aureus present with injection of the bulbar conjunctiva, episcleral vessels and perhaps papillae of the palpebral conjunctiva. The infection often starts in one eye, then soon spreads to the other. There will be thick mucopurulent discharge, and patients usually say that their eyelids and eyelashes are matted shut upon awakening. There may be mild photophobia and discomfort, but usually no pain. Visual function is normal in most cases. The eye has a battery of defenses to prevent bacterial invasion. These include bacteriostatic lysozymes and immunoglobulins in the tear film, the shearing force of the blink, the immune system in general, and non-pathogenic bacteria that colonize the eye and compete against external organisms that try to enter. When any of these defense mechanisms break down, pathogenic bacterial infection is possible. Invading bacteria, and the exotoxins they produce, are considered foreign antigens. This induces an antigen-antibody immune reaction and subsequently causes inflammation. In a normal, healthy person the eye will fight to return to homeostasis, and the bacteria will eventually be eradicated. However, an extra heavy load of external organisms can be too difficult to fight off, causing a conjunctival infection and setting the eye up for potential corneal infection. Eyelid and conjunctiva cultures may be essential if the infection is worsening.[10]

Tuberculosis can be a causative agent in phlyctenular conjunctivitis, especially in malnourished children aged 5 to 10 years in areas around the world with endemic tuberculosis. The sign and symptoms of this are unilateral redness and lacrimation are usually associated with the enlargement of the preauricular, submandibular, or cervical lymph nodes and histories the patient. Culture of conjunctival tissue may be done to exclution of other etiologies (Staphylococcus aureus).[10,15]

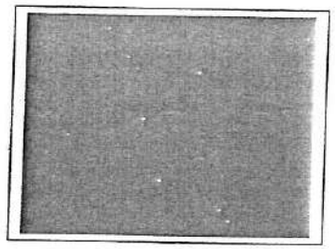

Figure 10. Phlyctenular conjunctivitis

Diagnosis conjunctivitis phlyctenular TB based on clinical, skin test for tuberculosis and chest X – ray. Ocular tuberculosis is uncommon in children. When it does occur, the conjunctiva and cornea are the areas most often involved. Unilateral redness and lacrimation are usually associated with the enlargement of the preauricular, submandibular, or cervical lymph nodes. Tuberculosis of the ciliary body or iris and tuberculosis uveitis are exceedingly rare in children. These forms of tuberculosis are very hard to diagnose because there is no material available for culture, the chest radiograph is usually normal.[1]

The patient complaint were redness and itching for 2 weeks. She didn't complaint dryness. The lession were recurrent since 1 year a go. The physical examination revealed white nodule (diameter 0,5 cm) with a focal area of inflamed conjunctival tissue, the rest of the conjunctiva remains clear, patient with moderate malnourish, and enlargement submandibula lymphenodes were present with diameter 1 cm, multiple, moveable, and no painless on palpation. The laboratory examination revealed LED was 20 mm/hour. The tuberculin skin test was positive with diameter 20 mm. Based on hystories, physical examination, and loboratory examination, conjunctivitis phlyctenular TB were suspected..

The lung is the most common portal of entry for tubercle bacilli. If the bacilli are ingested, infection in the upper respiratory or intestinal tract may result. This was more common in previous decades when bovine tuberculosis, transmitted in unpasteurized milk, occurred more frequently. Contamination of superficial skin or mucous membrane lesions such as an abrasion of the sole of the foot or the elbow, an insect bite, or an

ocular may lead to infection. Infection by inoculation with a sputum-contaminated syringe has been reported. True congenital infection, although rare, occurs either when the mother suffers from lymphohematogenous spread during pregnancy or has smoldering endometritis.[1,11]

The organisms reach the blood stream either directly from the initial focus or by way of the regional nodes and the thoracic duct. The sporadic dissemination ceases after delayed hypersensitivity develops. Many extrapulmonary lesions regress and heal completely, but some may progress immediately or remain quiescent but contain viable tubercle bacilli.[1,11]

Primary infection of the conjunctiva is unusual and more commonly affects children. Tuberculous conjunctivitis is often a chronic disease that may lead to scarring of the involved tissue.[13] The eye is also susceptible to local spread from nasolacrimal mucosa and exogenous infection if exposed to large numbers of airborne bacil. The eye, like any other organ, can be affected by haematogenous seeding of mycobacteriali.[10]

Phlyctenular conjunctivitis is a delayed hypersensitivity (type IV hypersensitivity) reaction in the cornea and conjunctiva to a foreign antigen. It is now known that following activation by the antigen, the T helper cells (CD4) secrete INF-g and other lymphokines that activate macrophages. The INF-g converts inactive vitamin D_3 to active Calcitriol (active vit D_3). Calcitriol triggers release of Tumor Necrosing Factor (TNF). In some people, TNF activates many phagocytic cells and helps formation of granuloma. In others, TNF kills sensitized cells in the neighborhood leading to necrosis.[10,12]

Some T cell products may sensitize cells to the toxic effects of TNF and this may depend on the particular subset of T helper cells involved. In people genetically primed to stimulate the subset of CD4 cells that sensitizes tissue cells for the toxic actions of TNF (a harmful DTH response), caseation necrosis, tissue damage and chronic disease occur.[10,12]

Drug therapy for extra-pulmonary tuberculosis (including ocular) is usually similar to that for pulmonary TB and is based on multi-drug regimes. Current guidelines recommend a six-month course of daily isoniazid (5-15mg/kg) and rifampicin (10-

20mg/kg), in addition to pyrazinamid (15-30mg/kg) for the first two months.[10] Systemic treatment with a multidrug regimen is preferred because pulmonary infection and other foci of infection may coexist. Systemic treatment is successful in the vast majority of cases, with subsequent resolution of symptoms, inflammation, and often an improvement in visual acuity to near premorbid levels. Primary treatment should always be systemic. Therapy is frequently continued for several months depending on the patient's immune status and response and should be administered in conjunction with a physician who is able to monitor for systemic toxic effects of the medication, such as liver damage.[13]

The patient had multi drug regimen (Rifampicin, Isoniazid, and Pyrazinamid). The patient improved with multi drug regimen treatment, body weight increased,and weren't revealed any symptoms after 2 months. The phlyctenular conjunctivitis didn't revealed and body weight incresed after 6 months treatment.

Loss of vision can be caused by phlyctenular conjunctivitis tuberculosis if the lession developed to the cornea. Corneal involvement leads to corneal thinning and perforation.[14]

SUMMARY

A rare case of phlyctenular conjunctivitis tuberculosis is being reported. Ocular tuberculosis are very hard to diagnose because there is no material available for culture, the chest radiograph is usually normal, and the adult source of infection often cannot be traced. Phlyctenular conjunctivitis is a type IV hypersensitivity reaction in the cornea and conjunctiva to a foreign antigen. The diagnosis was based on clinical, histopathological findings and response to short course anti tuberculosis chemotherapy.

The treatment of phlyctenular conjunctivitis tuberculosis are anti tuberculosis drug with rifampicin, insoniazid, and pyrazinamid. The prognosis in this patient is good, because she responded well to the anti tuberculosis treatment, local and systemic symptoms weren't revealed..

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