

BACTERIAL CONJUNCTIVITIS

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INTRODUCTION

Bacterial conjunctivitis is a very common ophthalmic condition that can affect anyone from day one of life to old age¹. It is one of the commonest reasons for self-referrals of patients visiting eye specialists. It is defined as an inflammation of the conjunctiva by bacteria where the palpebral, bulbar and fornical parts of the conjunctiva become hyperaemic. The infection can be acute, hyperacute or chronic. Contrary to popular belief it can be self-limiting but it is frequently treated with broad-spectrum antibiotics most commonly in drop form². Very rarely it can progress to complications such as keratitis (corneal infection) or pre-septal cellulitis (skin infection of the lids)³.

CAUSATION

There is a whole host of pathogenic bacteria that can cause this kind of benign ocular pathology⁴. The spectrum of bacteria includes *Neisseria*, *Staphylococcus Haemophilus*, *Moraxella* and *Chlamydia* species, as well as the highly virulent form of *Streptococcus pneumoniae*. The acute form is commonly caused by *Staphylococcus aureus*, *Streptococcus pneumoniae* or one of the *Haemophilus* species. *Moraxella* and *Chlamydia* can cause a chronic form. Clinically, *Chlamydia* can cause a non-purulent form of conjunctivitis with symptoms more synonymous of a viral infection like adenoviral conjunctivitis.

RISKS

The most common risk factor to acquire all forms of bacterial conjunctivitis is coming in contact with an infected individual⁵. However other risks include poor drainage of tears such as in nasolacrimal duct obstruction (NLDO), lid malposition such as entropion or ectropion (also interfering with lacrimal drainage), severe tear deficiency as in Sjogren syndrome and the associated autoimmune diseases. These conditions hinder the natural resistance mechanisms of the eyes. Patients on immunosuppressive agents such as steroids are at greater risk, as are older fragile patients. Good hand hygiene and limiting direct contact with infected individuals reduce the risks.

SYMPTOMATOLOGY AND SIGNS OF BACTERIAL CONJUNCTIVITIS

The differential diagnosis of bacterial conjunctivitis includes its viral form, the allergic variant and less commonly, conjunctivitis secondary to chemical exposure. All the signs and symptoms can be similar but in bacterial conjunctivitis there are some specific features. A purulent discharge that can have mucoid characteristics, irritation, diffuse conjunctival hyperaemia and bulbar conjunctival injection are all features that occur first in one eye but then commonly spread to the fellow eye.



Figure 1: Bacterial conjunctivitis showing prominent mucopurulent discharge, inflamed bulbar conjunctiva and lid swelling

DIAGNOSIS

The diagnosis is most commonly clinical¹. The patients' description that they might have come in contact with an infected individual also helps diagnosis. Full ophthalmic examination is necessary, including slit-lamp biomicroscopy to exclude intraocular pathology. If there is an associated keratitis one might observe a secondary reaction in the anterior chamber which may warrant treatment. Additional diagnostic tests are usually reserved for recurrent and/or chronic cases which are unresponsive to the initial medication. These include cultures, stains, smears and immunoassays. Typically in a chronic conjunctivitis one might need to specifically screen for viral causes (*Herpes*) and *Chlamydia* apart from cultures for the other forms of stubborn bacteria.

TREATMENT

The gold-standard treatment is with a broad-spectrum antibiotic in drop or ointment form for 5-7 days and is commonly effective. As mentioned above, it can also be self-limiting but treatment may reduce the symptoms and duration of the disease. Recurrence rates are lower in treated cases.

Sometimes aminoglycosides are not considered to be broad-spectrum antibiotics due to their poor activity against *Streptococci*⁶. Chloramphenicol resistance has become very common so it is not popular amongst ophthalmic surgeons⁷. On the other hand, erythromycin ointment is not commonly prescribed but is usually reserved for *Chlamydial* infections. It was traditionally a hospital item.

Fluoroquinolones are in their 4th generation (moxifloxacin) and can also be used in patients with infection related to contact lens misuse such as keratitis.

CONCLUSION

Though benign, bacterial conjunctivitis should never be treated lightly especially in older patients who are to undergo cataract surgery. Any suspicion of infection in these patients should be initially treated with topical antibiotics. One should wait clearance from sensitivity tests to ensure that the eye is free from pathogenic bacteria that can potentially cause acute post-operative bacterial endophthalmitis. There are ophthalmic surgeons who prefer to treat high-risk patients (diabetics and the immunocompromised) with a pre-operative course of 4 days with a 4th generation fluorinated quinolone like moxifloxacin. ❌

Table 1: Commonly used antibiotics in bacterial conjunctivitis in Malta

Antibiotic group	Example	Mode of Action
Aminoglycosides	Gentamicin Tobramycin	Protein synthesis inhibition
Chloramphenicol	Chloramphenicol	Protein synthesis inhibition
Fluoroquinolones	Ciprofloxacin Moxifloxacin	Interferes with DNA synthesis