Treating twenty-five cases of chronic resistant otitis externa with fluticasone propionate (Flixonase®): a case series

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Treating twenty-five cases of chronic resistant otitis externa with fluticasone propionate (Flixonase®): a case series Utilising Flixonase® in treatment of chronic otitis externa

Key points:

- Chronic cases of otitis externa, resistant to conventional treatments are notoriously difficult to treat, with resolution in these cases challenging.
- Guidelines suggest the use of corticosteroid in chronic otitis externa, however, there is no specific advice on which corticosteroid to utilise.
- Our case-series demonstrates the potential benefit of fluticasone propionate in patients who have previously failed a multitude of conventional management options.
- Despite the limitations of our study, our experience highlights a gap in the literature and suggest fluticasone propionate as an exciting and potentially important tool in the arsenal of the otolaryngologist.

INTRODUCTION

Otitis externa is a diffuse inflammatory condition of the external auditory canal. (1) It can be divided into sub-categories including acute (less than six weeks), recurrent acute, and chronic. Otitis externa that lasts more than three months, or more than four attacks of otitis externa per year, are defined as chronic otitis externa (COE). (2) The majority of acute cases (98%) are bacterial infections, with *Pseudomonas aeruginosa* (38%), *Staphylococcus epidermis*(9%), and *Staphylococcus aureus* (8%) being the most prevalent pathogens (1). Fungal infection is less common, with increased prevalence in chronic otitis externa resistant to topical antibacterial treatment, and is often referred to secondary care. (3) Most cases are mild and can be managed with topical antibiotics in primary care. (4) Nevertheless, a significant proportion of patients still require input by ear, nose and throat (ENT) specialists as the inflammation can persist for weeks or even months despite intensive treatment. (5) Patients with COE often require repeated visits to General Practice (GP) and ENT clinics for treatment monitoring and microsuction (4,6,7). The costs and healthcare burden are

substantial (2,4), with resolution in these cases challenging. At a certain point, clinicians will often have used a majority of conventional treatments without resolution of the infection. (4,7)

Prescription of a topical corticosteroid without antibiotic has been advised for chronic and recurrent cases. (1,8,9) No specific topical corticosteroid preparation has been advised in clinical guidelines, and the senior author of this paper (CC) has been utilising fluticasone propionate (Flixonase®). Fluticasone propionate drops were used based on anecdotal evidence from peers, its high topical activity (10) and its low risk of systemic effects. (11)

This article hence presents our experience of using fluticasone propionate drops in managing patients with COE, referred to the ENT department of a tertiary centre.

METHODS

2.1 Ethical Consideration:

The local research and development department has advised no need for ethical approval as the data collection was part of an audit. All patient data was anonymised prior to data analysis.

2.2 Study Design:

The study was performed at the University Hospital Birmingham. A retrospective case note review was conducted of all consecutive patients who have had a diagnosis of COE for more than 3 months between October 2016 and October 2018 and who were treated with fluticasone propionate by single surgeon. All patients were treated with 200μg of fluticasone propionate once daily for the affected ear. There were no modifications of treatment dosage during the length of the study. We did not have any exclusion criteria.

A standard protocol was designed for systematic data collection from the clinic letters.

Patients details recorded included sex, age at the time of diagnosis, previous treatment modalities, length of fluticasone propionate treatment, pre- and post-treatment symptoms including otalgia, tenderness, otorrhoea and itching, as well as signs of oedema and inflammation, and eventual outcome of treatment. We recorded the numbers of patients who showed resolution of symptoms after administration of fluticasone propionate drops. The definition of symptom resolution was to be symptom-free with a normal endoscopic view of the external auditory canal.

Results

Data were available for a total of 25 patients, with a median age of 55±15 years, and of whom the majority were female (21/25). The most common signs and symptoms at presentation were itching (20/25), skin changes (16/25) and otorrhoea (15/25).

Prior to treatment with fluticasone propionate, 44% (11/25) had tried combination of antibiotic and steroid drops, 28% (7/25) had taken topical steroid medications, 16% (4/25) have been on antibiotic only drops and 12% (3/25) had tried other medications, namely oral antibiotics (Table 1, Chart 1). The fluticasone propionate was started at a median of 5 months after diagnosis (range: 3-54), with a median treatment duration of 3 months (range: 1-18). Follow up was between two and eighteen months for all patients with median follow up of 6 months.

After treatment, twenty patients returned for a follow up appointment. Of the remainder, 5 patients did not attend the planned appointment. None of the 20 patients reported otalgia, tenderness, oedema or skin changes, and only one patient reported itching. In summary all 20 patients who attended the follow up

appointment reported symptom resolution and they were all discharged from the clinic. None of the patients were presented back to the clinic by the time of data collection in June 2019.

Table 1 – (Appendix – to be inserted here)

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Discussion

Chronic otitis externa (COE) is a common otological problem encountered regularly by clinicians in primary and secondary care with lifetime incidence reported to be up to 10%. (2,6) Otolaryngologists in secondary care often receive referrals of challenging cases of COE, where most conventional treatments have been exhausted and failed. (2,6) Although there have been few randomised controlled trial involving chronic cases along with acute otitis externa, no single recommendations can be derived for the treatment of COE as a separate clinical disorder. (1,9)

4.1 Synopsis of key finding

Here, we have investigated the outcome of using fluticasone propionate topically in 25 case of COE. As presented in the section above, all cases who returned to the follow up reported significant improvement and showed resolution of symptoms. When applied topically, fluticasone propionate, a potent corticosteroid, relieves pruritic and inflammatory symptoms through binding and activation of glucocorticoid receptors. (12) It should be noted that more than 70% of our patients used treatment modalities which contained some corticosteroids, with Sofradex® and Gentisone HC ear drops being the most common ones. A comparison between the steroid concentration of all three drops, shows that daily dosage of fluticasone propionate contains significantly higher concentration of corticosteroids, compare to the other two drops. Sofradex® ear drop (0.5% w/v of Framycetin, Sulphate 0.005% w/v of Gramicidin and 0.050% w/v of Dexamethasone) contains 50 micrograms of corticosteroid per 100 ml (13), and it delivers 0.3 micrograms of corticosteroid to the external ear canal when applied in its maximum daily dose. Gentisone HC ear drops (Gentamicin 0.3% w/v and Hydrocortisone acetate 1% w/v Ear Drops) contains 1000 micrograms of corticosteroid per 100 ml (14); which is equivalent to 8 micrograms of steroid per day when it is applied in its maximum dose. Given that our cases received 200 micrograms of fluticasone propionate daily, the significant difference in the amount of highly potent corticosteroid delivered to the external ear canal could explain the successful response observed in cure rate of resistant cases with a course of Flixonase® alone.

4.2 Study limitations

The findings of this study have to be seen in light of some limitations. The first is the variable length of treatment for each patient. Depending on the referral pathway, patients may have presented at a various stage of the clinical course of disease. In addition, each case received a different treatment regimen before referral. The diversity of interventions used in general practices has been previously reflected in data provided by the General Practice Research Database (GPRD) (4) and it has been demonstrated in our data (Chart 1). The second limitation concerns recording of possible side effects of fluticasone propionate. Although we did not systematically ask for side effects in our follow ups, none of our patients raised any concerns. The systemic bioavailability at 2400µg daily dose is estimated to be very low (0.06%). (11) Given the fact that fluticasone propionate was prescribed topically to the skin, not mucosa, the systemic bioavailability is likely to be lower than the figure cited above. Hence, it can be concluded that fluticasone propionate is likely to produce very small systemic exposures to steroids, and have a low potential for systemic side effects when administered topically to ears at 200µg daily dose. The last limitation is the restricted number of patients and those lost to follow up. It may be argued that the small sample size may over-estimate the magnitude of the association observed.

While recognising the limitations to our project, we believe that fluticasone propionate offers promise within a domain notoriously difficult to treat. There is no specific advice in guidelines regarding the choice of corticosteroids in chronic cases of otitis externa. (1,9) Also, the literature review reveals no previous study

that has assessed the effectiveness of fluticasone propionate, or any other corticosteroid, for treatment of COE. In any future study, a larger sample size will be required, along with a recording of detailed clinical features including any concurrent disease modalities, side effects and social factors. Considering the size of the problem (7,8), we believe the clinical practice in the field of otolaryngology will benefit from a prospective study that allows randomized head-to-head comparison for efficacy and safety of fluticasone propionate, in chronic cases of otitis externa.

Conclusion

Chronic otitis externa is often a recalcitrant problem and a challenge for the attending doctor. In the absence of guideline recommendations regarding the choice of corticosteroids for chronic otitis externa, we present a case-series demonstrating the potential benefit of fluticasone propionate. All patients (20/20) who returned to the follow up showed resolution of symptoms, having previously failed with a multitude of conventional management options. We did have some limitations which we hope could be analysed further with a more robustly designed study, however the use of Flixonase® is an exciting and potentially important tool in the arsenal of the otolaryngologist.

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Conflict of interest:

None to declare

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`Table 1.docx` available at https://authorea.com/users/300180/articles/452312-treating-twenty-five-cases-of-chronic-resistant-otitis-externa-with-fluticasone-propionate-flixonase-a-case-series

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`Chart I.docx` available at https://authorea.com/users/300180/articles/452312-treating-twenty-five-cases-of-chronic-resistant-otitis-externa-with-fluticasone-propionate-flixonase-a-case-series