

Factors determining the outcome of paediatric exotropia surgery

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ABSTRACT

Objective: To determine the socio-demographic and clinical profile of exotropia surgery outcomes amongst paediatric patients.

Methods: This is a descriptive, retrospective, clinical study of surgeries performed between 2014 and 2016 at the Sarawak Heart Centre, Malaysia. Medical records of patients with primary and secondary exotropia were reviewed. The following factors that affected the surgical outcomes were collected: onset age of squint, age at the time of surgery, the interval between diagnosis and surgery, the type of exotropia, visual acuity, presence of amblyopia, previous patching, anisometropia, refractive error, type of surgery, preoperative and postoperative deviation, pre-existing ocular comorbidity and systemic illness.

Result: A total of 15 patients were studied with more than two thirds being females. Seven patients had primary exotropia while eight patients had secondary exotropia. Average interval between diagnosis and surgery was 1.3 years (± 0.82) for primary exotropia and 1.2 years (± 0.84) for secondary exotropia. Average pre-operative angle for primary exotropia was 50.57PD (± 10.83) whereas secondary exotropia was 39.38PD (± 8.63). Seven patients had successful surgical outcomes of within 10 prism dioptres, five for primary exotropia and two for secondary exotropia. The response to surgery was 3.0PD/mm (± 0.59) for primary exotropia and 2.2PD/mm (± 0.74) for secondary exotropia.

Conclusion: In our study, primary exotropia had larger preoperative angle than secondary exotropia. The response to surgery was positively correlated with the preoperative angle of deviation. Primary exotropia showed better surgical outcome.

KEY WORDS:

exotropia, surgery outcome

INTRODUCTION

Exotropia is an ocular alignment disorder characterised by an outward deviation of the eyes. Incidence of childhood exotropia is estimated to affect approximately 1.0% of children younger than 11 years of age in countries like the

United States of America and Iran.¹ In Malaysia, one cross-sectional study carried out in 1982 reported the incidence of exotropia of 1.8%.²

Amongst the benefits of exotropia correction include the development of binocular single vision, elimination of diplopia and creation of a normal appearance especially for young children. This is of great importance as studies have demonstrated lower self-esteem and poorer quality of life in individuals affected by strabismus.³ If uncorrected, individuals with exotropia were also found to have significantly higher numbers of mental health disorders by early adulthood.⁴

Exotropia can be classified as either primary or secondary. Primary exotropia can be further sub-classified as either intermittent or constant based on clinical assessment. Secondary exotropia can be sub-classified as sensory or consecutive based on ocular pathology or overcorrection of esotropia respectively.⁵

In previous studies, amongst the several factors identified to influence the response to surgery, of utmost importance was the preoperative angle of deviation. The larger the preoperative angle of deviation, the better the surgical response.^{6,7}

Older age at time of surgery, better average corrected visual acuity, higher average spherical equivalent and anisometropia were found to be negatively correlated with the surgical response.⁶ This suggested a better surgical response with younger age, poorer visual acuity, less myopic refraction and less anisometropia.

The objective of this study was to determine post-operative outcomes of primary and secondary exotropia. As the majority of earlier articles focussed on primary exotropia; this study can also contribute by providing insights into secondary exotropia outcomes. This study also documents for the first time exotropia surgery outcomes in Sarawak.

MATERIALS AND METHODS

This was a descriptive retrospective clinical study. Case records of patients who had exotropia surgery at the Pusat

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