

We need to pay heed to the psychosocial aspects of strabismus

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Abstract

Adult strabismus surgery has long been regarded as cosmetic. This paper summarises the current evidence that this statement should be discarded. The evidence shows that strabismus surgery in non-diplopic adult patients can be beneficial in both functional and psychological situations. It is suggested that the term cosmetic would be better replaced by reconstructive.

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Introduction

Adult strabismus is present in ~4% of the population. When the patient does not suffer from diplopia surgery has long been regarded as a cosmetic procedure. The term ‘cosmetic’ originated in the early 17th century as a noun denoting the art of beautifying the body. The English variant of the term derives from French ‘cosmétique’ or Greek ‘kosmētikos’. Both of these mean to arrange or adorn. Before 2005, the strabismus literature was mainly concerned with either childhood strabismus or the management of amblyopia. In adults, the literature was in the diagnosis and classification of disease or treatment options for functional adult strabismus, such as neurological or mechanical conditions. Outcomes of surgery were for correction of diplopia rather than appearance. Jackson *et al* in 2006,¹ published the first major paper to discuss psychosocial improvements in adult squint surgery. The authors presented a study of 46 patients who had standardised measures of anxiety and depression both preoperatively and then 6 weeks and 3 months post operatively. Preoperatively the study group had slightly raised levels of anxiety but significantly poorer

levels of social anxiety and social avoidance. After surgery there were significant improvements in psychosocial adjustment and also improvements in all study variables. Patients without diplopia made more significant gains than the diplopic group. The inclusion of this second group is probably the only weakness in this study. The measurement techniques used were

- (1) HAD (Hospital Anxiety and Depression Scale)
- (2) DAS (Derriford Appearance Scale)
- (3) WHOQoLBref (World Health Organization Quality of Life)

The conclusion was that strabismus surgery offers significant improvements to psychological and physical functioning.

HAD Scale

The HAD Scale was originally developed to detect states of depression, anxiety and emotional distress amongst patients who were being treated for a variety of clinical problems.² The questionnaire is a self-assessment scale which originally had eight questions related to depression and eight relating to anxiety. The questions are scored on a scale of 0–3. It was discovered that one item on the depression scale was weak and removed. To balance the questionnaire the worst discriminator on the anxiety scale was also removed. This questionnaire produces reproducible results and minimal test retest variability but does not have any specific questions related to ocular position and so may have limited use in assessment of strabismus related studies.

DAS

The DAS was originally developed at Derriford Hospital in Plymouth, UK using patients

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undergoing aesthetic surgery (eg, large/small breastedness, breast asymmetry, prominent ears, and problems with the nose), patients awaiting treatment of congenital and acquired disfigurements and deformities (eg, cleft lip, haemangiomas, and scarring from disease, injury, or surgical therapies), and patients awaiting treatment of conditions not primarily concerned with appearance (eg, hand surgery).³ The original self-reporting questionnaire consisted of 136 items divided into 3 sections. This was known as the DAS 136. Refinement of this tool by removing duplicate questions and those items with poor correlations produced the DAS59 with 57 of the original 136 items. A short form of the scale was also developed from the DAS 136. Originally, 26 items were selected but 2 of these did not perform adequately and so the final scale became the DAS24. The various scales are generic and focused towards plastic and aesthetic surgery and not specific to ocular misalignments.

WHOQoLBref

The WHOQOL-100 quality of life assessment was developed by the WHOQOL Group utilising 15 international field centres at the same time trying to produce a quality of life assessment that could be used cross-culturally.⁴ The reason for the development was to measure health in ways other than mortality and morbidity along with impact on life. Most quality of life measures have been developed in the UK or North America and may not be able to translate or accurately measure QoL in other cultures. The WHOQOL-100 had 100 items selected for inclusion. These included 4 items for each of 24 facets of quality of life, and 4 items relating to the overall quality of life and general health facet. The 24 facets were divided into 6 domains. Further work suggested that a four domain structure was much more appropriate and this was retitled the WHOQoFBref. The four domains are

- (1) Physical health
- (2) Psychological
- (3) Social relationships
- (4) Environment

Physical health included activities of daily living, mobility, work capacity, and medicine dependency. Psychological included body image and appearance, personal and spiritual beliefs, and self esteem. Social relationships included sexual activity, personal relationships, and social support. Environment included finance, home, physical environment, and transport.

The second and third domains are affected by strabismus, but the others are unlikely to measure problems caused by this.

None of these three questionnaires are able to measure the impact of strabismus on the individual.

A patient with manifest strabismus can suffer from difficulties in social interactions. These difficulties can be summarised under two headings

1. The effect on the patient—These will include failure to meet others gaze, face turns to disguise the problem, growing a long hair fringe, rubbing the deviated eye, talking to the floor, and problems making relationships.
2. The effect on others—It is recognised that facial symmetry is related to attractiveness. Digital manipulated photographs showing a strabismic man and woman were shown to 40 dating agents. The majority judged that the strabismic subjects would have more difficulty in finding a partner. An exodeviation was perceived as having greater problems than esodeviations. The presence of a strabismus had the third largest negative impact on finding a partner after strong acne and a visible missing tooth.⁵ These findings were confirmed by headhunters.⁶

A new strabismus specific questionnaire was first reported in 2009.⁷ The Appearance Scale 20 (AS20) was a patient-derived, health-related quality of life questionnaire for adults with strabismus. Patients ($n = 29$) were interviewed in the initial phase followed by 32 strabismics, 18 with other eye disease and 13 normal adults for phase 2. One-hundred and eighty-one questionnaire items in two factors (functional and psychosocial) were tested. The final questionnaire had the 10 questions with the highest correlation in each factor. This was finally tested against 32 patients with strabismus (22 with diplopia and 10 without diplopia), 13 visually normal adults, and 18 patients with other eye diseases. A 5-point Likert-type scale was used for responses (never = 100, rarely = 75, sometimes = 50, often = 25, and always = 0). The questionnaire scores and psychosocial and function subscale scores, range from 0 (worst HRQOL) to 100 (best HRQOL).

Having developed this questionnaire, it was important to compare it against other published quality of life measures. The AS20 was initially tested against the VFQ-25 in patients with strabismus.⁸ The VFQ-25 is administered by an examiner and consists of 25 questions that include areas related to visual functioning, mental health, driving problems, work related issues, and global visual problems. The AS20 was found to be more sensitive for detecting reduced quality of life in adult strabismus than the VFQ-25. The AS20 was then

compared against the DAS59 using 34 patients and 30 controls.⁹ There was strong correlation between the two questionnaires. The strabismus group showed significantly more psychosocial distress than controls. The AS20 was noted to be specific for strabismus patients and not influenced by any other systemic factors than the general DAS59 scale.

A comparison between AS20 score and patient demographics was then reported.¹⁰ The patients who were female or lived in a more socioeconomically deprived area had a significantly lower AS20 score.

Measured outcomes

The change in patients' quality of life after strabismus surgery was evaluated in a study comparing AS20 scores pre- and post-operatively in comparison with changes in angle of deviation.¹¹ It was found that in all cases a significant improvement in the AS20 quality of life scores following strabismus surgery. The larger the change in deviation achieved, the greater the improvement in AS20. In addition, the smaller the post-operative angle of deviation, the larger the AS20 score. Finally, it was noted that females have a larger change in AS20 scores compared with males. Another study confirmed improved psychosocial and functional gains following successful strabismus surgery in an Indian population using the same quality of life measure. It was again suggested that the improvement in these measures was greatest in females.

Long-term effects

Two studies have shown that the improvement in health-related quality of life is maintained in the longer term. One study used the AS20 as its measure of quality of life. This showed that if the adult patient remained with a satisfactory strabismus alignment long term, then a continued improvement in AS20 scores occurred from the 6-week post-operative review to 1 year.¹² This indicated that the benefit of surgery improved over an extended period. The second study used the HAD, DAS, and WHOQoLBref measures.¹³ The patients were evaluated at 3 months and 18 months post surgery after an initial check for 6 weeks. Social and environmental domains of the WHOQoLBref and the scales for coping, post-operative satisfaction strabismus noticeability and strabismus severity in the DAS24 had continued to improve at 18 months compared with the 3-month review.

Conclusion

Adult squint surgery is usually regarded as cosmetic and as such may be less deserving of funding in socialised

health care systems. The current evidence shows that the effect of successful strabismus surgery has long-lasting effects both on the functional and psychological well being of the patients and far beyond a cosmetic effect. It would therefore be sensible to redefine the so called cosmetic squint surgery as reconstructive with the aim being to restore parallel visual axes, which is the normal condition.

Conflict of interest

The authors declare no conflict of interest.

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