Reasons for Delay of Surgical Intervention in Adult Strabismus

David K. Coats, MD; David R. Stager, Sr, MD; George R. Beauchamp, MD; David R. Stager, Jr, MD; Malcolm L. Mazow, MD; Evelyn A. Paysse, MD; Joost Felius, PhD

Background: It has been our impression that adult patients with strabismus frequently delay surgical intervention.

Objectives: To determine the length of time adult patients waited before undergoing strabismus surgery and to determine the reasons why these delays occurred.

Design, Setting, and Participants: Prospective survey of consecutive patients who delayed strabismus surgery for more than 1 year.

Intervention: Preoperative survey.

Main Outcome Measures: The primary outcome measure was time between the onset of strabismus and surgery and the reason why surgery had not been previously sought.

Results: The mean age among 128 study participants was 45.7 years (age range, 18-86 years). The mean time between the onset of current strabismus and surgery was 19.9 years (range, 1-72 years). The major reasons for delay in seeking surgical treatment included the following: surgery was never offered by eye care specialist (35 patients [27%]), surgery was offered but declined by the patient (29 patients [23%]), the patient had received prior satisfactory nonsurgical care (17 patients [13%]), the patient had never sought care (14 patients [11%]), the patient had a previous poor surgical experience (8 patients [6%]), and the patient had been told by their eye specialist that nothing could be done or that surgery could make them worse (8 patients [6%]).

Conclusions: Strabismus surgery is often delayed for many years in adult patients who could potentially benefit from it. Almost half of such delays could be avoided by better education of the lay public and the medical community.


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HOUGH OFTEN CONSIDERED predominantly a pediatric problem, strabismus (ocular misalignment) is common among adults, affecting as much as 4% of the adult population, and is not an uncommon procedure performed on Medicare-aged patients.1 Strabismus is associated with many significant psychosocial problems.2 Paysse et al3 reported that bias and discrimination may develop against those affected by strabismus as early as 6 years of age. Satterfield et al4 studied patients with strabismus and reported a negative relationship between strabismus and formation of friendships, self-image, and a variety of other important psychosocial issues. Furthermore, they found that problems were not only present in childhood, but also persisted through adult life. Olitsky et al5 reported that strabismic subjects were more likely to be perceived as less intelligent, less competent, and to have poorer communication skills than orthotropic subjects. Coats et al6 reported potential adverse vocational implications of strabismus. Finally, strabismic surgery has been shown to significantly improve negative psychosocial issues associated with strabismus.6

Nevertheless, it has been our impression that there is often a long delay between the onset and the surgical correction of strabismus in adult patients. The reluctance of adult patients to undergo surgical treatment is presumably in part owing to common misconceptions about the success rates, adverse effects, and complications, despite encouraging results that have been reported in the literature.7-13

In this study, a group of adult patients who delayed surgical treatment for at least...
1 year after the onset of their strabismus were evaluated. The purpose of this study was to assess the length of treatment delay and the patients’ reasons for the delay.

**METHODS**

During the study period between January 1, 2002, and August 31, 2002, 277 adult patients (aged ≥18 years) underwent strabismus surgery. Strabismus had been present in 128 (46%) of these patients for at least 1 year prior to surgical treatment. These 128 patients represented the study cohort.

By means of a brief preoperative questionnaire, the following data were collected: age, sex, and race of the patient; the presence of diplopia; whether strabismus occurred in childhood (ie, before visual maturation or the age of 9 years) and the duration of the current episode of strabismus. In some patients strabismus may have been a recurrent problem. In addition, patients were asked to select their primary reason for the delay in surgical treatment from the following list:

- Surgery was never offered by my eye specialist.
- Surgery was offered, but I (or my parents) declined.
- I was told nothing could be done or surgery could make the problem worse.
- I never sought care.
- I was advised I was too old for surgery.
- I was treated nonsurgically until now.
- [I had a] poor experience with prior strabismus surgery.
- Other (miscellaneous reasons or no response).

**RESULTS**

The mean age at surgery was 45.7 years (age range, 18–86 years; median age, 43 years). Sixty-eight patients (53%) were female. One hundred two patients (80%) were white, 10 (8%) were Hispanic, 13 (10%) were African American, and 3 (2%) were of other racial origins. Constant or intermittent diplopia was present in 72 patients (56%). Sixty-eight patients (58%) had onset of strabismus prior to visual maturity. The mean time between the onset of their current strabismus and surgery was 19.9 years (range, 1–72 years).

The mean±SD time before surgical intervention in patients with diplopia was 15.3±18.2 years vs 28.5±16.3 years for those without diplopia (t=3.4; P=.001). The mean±SD delay before surgery in patients with the onset of strabismus before visual maturation was 28.8±18.5 years, compared with 9.9±11.2 years for those with onset after visual maturation (t=7.1; P<.001).

The 7 most common reasons reported by patients for delaying surgical care included (1) surgery was never offered by their eye care specialist (35 patients [27%]); (2) surgery was offered but was declined by the patient (29 patients [23%]); (3) the patient had received prior satisfactory nonsurgical care (17 patients [13%]); (4) the patient had never sought care (14 patients [11%]); (5) the patient had a poor prior surgical experience (8 patients [6%]); (6) the patient had been told by his or her eye specialist that nothing could be done or that surgery could make the problem worse (8 patients [6%]); and (7) the patient was advised he or she was too old for surgery (21 patients [2%]). Fifteen patients (12%) listed miscellaneous reasons or did not answer the question.

Despite erroneously being considered primarily a disorder of children, strabismus frequently occurs in the adult population. Strabismus can develop in childhood before visual maturation and go untreated or can recur in adulthood. Strabismus can also develop de novo in adults due to cranial nerve palsy, worsening of a previously controlled phoria, and stroke, among other causes.

Based on the prevalence of diplopia and the proportion of patients who reported onset of strabismus before visual maturation, we conclude that our study cohort was comparable with samples in previous studies.7,9,14 With about half of the patients experiencing diplopia as well as about half with onset before the age of 9 years.

Our prestudy hypothesis that strabismus surgery was often delayed in the adult population is supported by our data, with almost half of our adult patients operated on during the study period having had a delay of 1 year or more before undergoing surgical intervention. Despite significant known psychosocial2 and potential vocational3 implications of strabismus, surgery on our patient group was delayed on average almost 20 years. Although patients with onset of strabismus after visual maturation or with diplopia tended to undergo surgical intervention sooner, a long delay (mean, 9.9 years and 15.3 years, respectively) between onset of strabismus and surgical correction was still found. This has been demonstrated to be the case in strabismic adults in France as well.13 The true rate of delay, however, can only be determined through a population-based study and this targeted study of patients undergoing strabismus surgery in a tertiary care setting may overestimate or underestimate the true figures regarding surgical delay.

Efforts to educate physicians and the lay public about surgical options for the correction of strabismus could substantially benefit affected patients, allowing them to avoid years of unnecessary physical and/or psychologic problems associated with the condition. Among the reasons cited for delay in care by our patients, one third could have been avoided by better advice from the patient’s eye specialist, who did not offer surgery, advised the patient that nothing could be done, or reportedly told the patient that he or she was too old for surgery. Sixteen percent of the delays could have been avoided by better education of the public, targeting patients who either never sought care or who had unwarranted fears of surgical complications, including postoperative diplopia, a finding that is uncommon following surgery.7

**CONCLUSION**

Surgical intervention was commonly delayed in our adult patients, with a mean delay of almost 20 years before undergoing surgical intervention in the study cohort. Delay was common even in patients with diplopia. Access to surgical care by adult patients could be improved by increased awareness of the potential benefits of strabismus surgery by comprehensive eye specialists, primary care physicians, and increased public awareness of the fact that strabismus can be effectively treated in adults. Earlier surgi-
cal intervention has the potential to significantly reduce patient suffering resulting from strabismus.

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**Correspondence:** David K. Coats, MD, Department of Ophthalmology, Baylor College of Medicine and the Texas Children’s Hospital, 6621 Fannin, MC640.00, Houston, TX 77030 (dcoats@bcm.tmc.edu).

**REFERENCES**


**Correction**

Incorrect Dilution of Sodium Chloride. In the article by Hazarbassanov et al titled “Alcohol- vs Hypertonic Saline–Assisted Laser-Assisted Subepithelial Keratectomy,” published in the February issue of the *ARCHIVES* (2005;123:171-176), the percentage of sodium chloride should have been 5% throughout the article. The journal apologizes for the error.