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Swimming and grommets

by

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Introduction

It is still widely held that grommets preclude swimming (British Medical Journal, 1978; Ludman, 1981; Cowan, 1982). The assumption has been based on circumspect argument and limited experimental work (Head, 1978). There is not one supporting clinical study in the literature. Some even remove grommets temporarily to allow swimming in summer (Gibb, 1979).

Anecdotal dissent has been heard often and recorded occasionally (Roland, 1978), especially from warm climes and coastal regions. Chapman (1980) has conducted an excellent prospective study which showed that the chance of otorrhoea occurring in children with grommets was not affected by their swimming. This undermined our own department's attitude.* A similar clinical study was done, both to enlarge and verify these findings, and to detect any regional differences.

Method

One hundred and nineteen children were admitted to a prospective study. They were aged from two to 15 years and came mainly from the North East Thames Region. They were all thought to have secretory otitis in at least one ear. The operations were done by the authors. A Shepard grommet was inserted into the antero-inferior quadrant of the drumhead if myringotomy liberated thick glue or copious thin fluid. This was done either as the only procedure or combined with tonsillectomy or adenotonsillectomy.

The children with their parents or guardian were seen one week after surgery. The decision to swim was theirs. Subsequently any history of otorrhoea—defined as any noticeable discharge other than wax—the frequency of swimming, and the position and patency of the grommet(s) were recorded every two months.

Results

Of the 119 children included in this study, four were lost to follow-up, 19 lost their grommets in under four months, and 15 had incomplete records.

The remaining 81 children, 48 boys and 33 girls, are analysed. Forty-two had one and 39 had two grommets inserted, making 120 ears with grommets.

Two patients were counted twice, making the sum of the groups 83 from an initial total of 81. One non-swimmer with bilateral grommets had a unilateral discharge. The other, also with bilateral grommets, started to swim four months post-operatively. One ear was wet prior to this; the other ear remained dry throughout.

The differences between the swimming and non-swimming groups for both ears and patients were measured (Tables I and II), Fisher's Exact Probability Test shows that

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TABLE I

PATIENTS

	Total	Post-operative discharge	Per cent of total with discharge
Swimmers	43	3	7.5
Non-swimmers	40	6	17.6

TABLE II

EARS

	Total	Post-operative discharge	Per cent of total with discharge
Swimmers	63	3	5
Non-swimmers	57	7	14

there is no significant difference at the 0.1 level.

Discussion

One of the commonest questions asked by parents after their child's 'grommet operation' is 'Can he (or she) swim?' Usually the answer is no. Some units attempt at compromise using ingenious circumvention but the prevailing attitude is one of protection. Avoidance of any theoretical risk to an operative field is a natural and proper surgical reaction. Tympanostomy tubes expose the middle-ear to the inrush of noxious fluid. The ensuing damage may be clinically obvious: hearing loss, otalgia, otorrhoea, grommet extrusion, facial palsy, and vertigo may conceivably result from pollution and subsequent sepsis of the middle-ear cleft by the passage of infected or impure water through a grommet. It may be less obvious: adhesive otitis media, tympanosclerosis, derangement of the inner ear through osmotic effects at the round and oval windows, metaplasia of the middle-ear mucosa and possibly even keratosis may be imagined among the sequelae.

Chapman's study is the only other prospective assessment of the risks of allowing children with grommets to swim. Using as similar a method as possible, we differed in the number, age range, length of follow-up and source of the patients. Our smaller number of children (38 were lost v.s.) may have been due to a more transient population, stricter criteria for grommet insertion and a smaller effective catchment area. Our age range was six years the greater. Seven patients were older than Chapman's upper age limit of 10 years. One patient of 14 years swam and developed otorrhoea. It may be argued that older swimmers are more adventurous and swim deeper and for longer than those under 10 years. This girl had had five previous myringotomies and two previous grommet insertions. Although our study is too small to say anything about the relationship of previous ear infections and surgery to discharge, this girl's age and her manner of swimming may not have been the most important cause of her otorrhoea. The other patient with otorrhoea outside Chapman's age range was a boy of two. He was understandably a non-swimmer but a toddler's bath may be more exuberant than those of an older child. Follow-up in Chapman's study was for six months whereas ours extended in some cases up to 14 months. We also included children whose grommets were extruded after four months. On average the grommets were in for 6.5 months. Other contrasts between the regions may have been caused by different swimming pool conditions and different proportions of patients swimming in river, pool or sea water.

Comparison of the results of the two studies (Table III) shows a remarkable degree of similarity.

TABLE III

OXFORD TRIAL *(Chapman, 1980)*
TOTAL 112 CHILDREN

	No. of cases	Post-operative discharge	Per cent of total with discharge
Swimmers	63	9	14.3
Non-swimmers	49	9	18.3

In both there is a higher incidence of otorrhoea in non-swimmers. This is not

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significant in either study. Chapman showed that in his two groups no observable bias was introduced by age or social class by a matched pair analysis. We did not consider doing a similar analysis in view of the overall finding of insignificance.

Thus no regional differences were reflected in the results. Our broad conclusion is the same: children with grommets inserted are no more likely to develop otorrhoea if they do swim than if they do not.

The limitation of both studies is that the absence of otorrhoea does not exclude more insidious, long-term, aural pathology. Therefore a longer term study is needed to shed some light on this problem.

Conclusion

Notwithstanding the theoretical limitation of this and the previous study a practical conclusion has to be sought. Should the child swim? Both the authors feel that, balancing the possible risks against the known facts and bearing in mind the value and joy of swimming to children, both parents and patients should be reassured that no harm can come from swimming with grommets in place.

Uneasy clinicians may wish to qualify their permission by advising against jumping, diving and submerging although these activities were not restricted in our study.

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References

ANON (1978) What is the present day management after inserting grommets in children? *British Medical Journal*, **2**: 420.

CHAPMAN, D. F. (1980) Swimming and grommets. *Clinical Otolaryngology*, **5**: 420.

COWAN, D. L. (1982) Acute Otitis Media in Logan Turner's *Diseases of the Nose, Throat and Ear.* Ed. by J. F. Birrell, 9th Edition, pp. 345–383.

GIBB, A. C. (1979) Non-suppurative otitis media in *Diseases of the Ear, Nose and Throat.* Ed. by J. Ballantyne and J. Groves, 4th Edition, pp. 193–235.

HEAD, P. W. (1978) Grommets and Swimming. *British Medical Journal*, **2**: 1497.

LUDMAN, H. (1981) *Deafness in childhood in ABC of Ear, Nose and Throat.* Published by BMA, pp. 18–20.

ROLAND, P. E. (1978) Grommets and Swimming. *British Medical Journal*, **2**: 1301.

https://doi.org/10.1017/S002221510014650X Published online by Cambridge University Press

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