

although laboratory evidence exists of an effect of lactose, although less than that of sucrose, on caries promotion in rats¹⁹ and hamsters.²⁰ Even the role of sucrose in the causation of dental caries is highly controversial with those in favour²¹ and those far more sceptical.^{22,23} Naylor²⁴ points out that it is not the absolute amount of sugar taken that is important in caries causation but rather the pattern of eating. Thus if total sugar intake is not responsible for caries, why are we concerned about the lactose contribution to total sugar? The answer is that milk also provides energy and in a developing community any food item providing extra energy is of value to the growing child; that this extra energy source will not promote caries is an added bonus. As a provider of energy, increased milk consumption could benefit low consumers, but this may well need to be set against the known high prevalence of lactase deficiency among black communities.²⁵ Segal *et al.*²⁵ suggested that the provision of fermented milk products would be more acceptable than whole milk in lactase-deficient black groups. Fermented milk is used traditionally in South Africa as 'maas' and is also culturally accepted.

REFERENCES

- Hargreaves JA, Cleaton-Jones P, Richardson BD. Sugar consumption and dental caries: comparison between Canada and South Africa: I. Canadian studies. *Proceedings of the Second Symposium on Sugar and Health*. Durban, 6 - 7 May 1985. Durban: SA Sugar Association, 1985: 11-14.
- Cleaton-Jones P, Hargreaves JA, Richardson BD. Sugar consumption and dental caries: comparison between Canada and South Africa: II. South African studies on 5-year-old children. *Proceedings of the Second Symposium on Sugar and Health*. Durban, 6 - 7 May 1985. Durban: SA Sugar Association, 1985: 15-19.
- Dwyer J. Diets for children and adolescents that meet the dietary goals. *Am J Dis Child* 1980; **134**: 1073-1080.
- Chao ESM, Anderson GH, Thompson GW, Hargreaves JA, Peterson RD. A longitudinal study of the dietary changes of a sample of Ontario children: II. Food intake. *J Can Diet Assoc* 1984; **45**: 112-118.
- Konrad D, ed. *Documenta Geigy Scientific Tables*. 6th ed. Basle: JR Geigy, 1962: 514.
- SAS User's Guide: Basics, Version 5 Edition. Cary, NC: SAS Institute, 1985: 1290.
- Siegel S. *Nonparametric Statistics for Behavioral Sciences*. Tokyo: McGraw-Hill Kogakusha, 1956: 184-194.
- Siebert A, Johnsen D. Breakfast of schoolchildren 11 to 13 years old. *Ernährungsforschung* 1984; **29**: 103-105.
- Nnanyelugo DO. Evaluation of milk and nutrient intakes of school children in Nigeria. *Appetite* 1984; **5**: 175-185.
- Harper AE. Dietary goals — a skeptical view. *Am J Clin Nutr* 1978; **31**: 310-321.
- Hegsted DM. Dietary goals — a progressive view. *Am J Clin Nutr* 1978; **31**: 1504-1509.
- Ferro-Luzzi A, Norgan MD, Durnin JVGA. Food intake, its relationship to body weight and age, and its apparent nutritional adequacy in New Guinean children. *Am J Clin Nutr* 1975; **28**: 1443-1453.
- Harper AE. Recommended dietary allowances (revised - 1973). *Nutr Rev* 1973; **31**: 393-396.
- Hegsted DM. Dietary standards. *N Engl J Med* 1975; **292**: 915-917.
- Walker ARP, Walker BF. Recommended dietary allowances and Third World populations. *Am J Clin Nutr* 1981; **34**: 2319-2321.
- Richardson BD. Milk-drinking habits of black South African schoolchildren. *S Afr Med J* 1982; **62**: 972-973.
- Hargreaves JA, Thompson CW, Anderson GH, Peterson RD, Cleaton-Jones P. Dental caries and sucrose consumption: comparison between Canada and South Africa: I. Canadian studies of 5 - 6 year-old children. *Pediatric Dent* 1987 (in press).
- Newbrun E. *Cariology*. Baltimore: Williams & Wilkins, 1978: 76-96.
- Shaw JH, Krumins F, Gibbons RJ. Comparison of sucrose, lactose, maltose and glucose in causation of experimental oral disease. *Arch Oral Biol* 1967; **12**: 755-768.
- Mäkinen KK. The role of sucrose and other sugars in the development of dental caries: a review. *Int Dent J* 1972; **22**: 363-386.
- Shaw JH. Diet and dental health. *Am J Clin Nutr* 1985; **41**: 117-131.
- Jackson D. The 'sweet tooth' and caries experience. *The Probe* 1979; July: 4-8.
- Walker ARP. How practical are meaningful reductions in dental caries by dietary means? *Nutr Abst Rev* 1984; **54**: 211-217.
- Naylor MN. Nutrition and dental decay. *Proc Nutr Soc* 1984; **42**: 257-263.
- Segal I, Gagee PP, Essop AR. Lactase deficiency in the South African black population. *Am J Clin Nutr* 1983; **38**: 901-905.

Postpartum sterilisation with the Filshie titanium silicone-rubber clip and subsequent pregnancy

V. P. DE VILLIERS

Summary

Pregnancy subsequent to postpartum Filshie clip sterilisation has occurred in 8 out of 789 patients operated on at Paarl Hospital since early 1983. As most pregnancies after sterilisation occur within 2 years, more failures can be expected. The use of this method has thus been discontinued.

S Afr Med J 1987; **71**: 498 - 499.

Department of Obstetrics and Gynaecology, University of Stellenbosch and Paarl Hospital, Paarl, CP
V. P. DE VILLIERS, F.R.C.O.G.

A preliminary report¹ on 101 postpartum Filshie clip sterilisations carried out at Paarl Hospital in early 1983 revealed many advantages of the method: speed of operation (average of 6,67 minutes per procedure), minimum damage to surrounding structures, and only 4 mm of the tube destroyed by pressure necrosis. Reversal by re-anastomosis was potentially easy. As young women in Paarl are increasingly requesting sterilisation after their second child, successful re-anastomosis is an important consideration. Despite the considerable extra cost, most Paarl patients have had a Filshie clip sterilisation in order to evaluate the method fully. No pregnancies were encountered within the first 27 months of the project. However, an alarming report by the Indian Council of Medical Research in October 1984 revealed 60 involuntary pregnancies in 869 women,² an early failure rate of 6,9% mostly in women sterilised either postpartum or after abortion.

The Mark VI Filshie clip is made of titanium with a silicone-rubber lining; it is 4 mm wide and 12,7 mm long, and

is bent around the fallopian tube by a special applicator. As the hinged metal clip locks onto the fallopian tube, its soft inner lining is compressed. When tubal necrosis occurs the rubber expands to keep the lumen closed. The tube eventually divides leaving two healed stumps which occasionally separate. Usually the clip remains attached to the host tissue and becomes covered with a thin layer of peritoneum. Postpartum tubes, however, are oedematous and brittle and often break on clip application, leaving two patent edges. This fact was observed only at the end of the project period when failures started to be reported.

Patients and methods

Between 1 January 1983 and 30 June 1985 a total of 900 postpartum sterilisations were carried out among the 6365 patients who delivered at the maternity hospital at Paarl (14,1% incidence of postpartum sterilisation). Filshie clip procedures numbered 789.

All patients were counselled at antenatal clinics well in advance of delivery, with free use of audiovisual programmes to inform each patient of the advantages and permanence of sterilisation. Discussion was led by two motivators, one of whom spoke Xhosa. It was, however, always pointed out that failure could take place and accordingly no sterilisation could be guaranteed.

A trans- or sub-umbilical minilaparotomy was carried out most often within 24 hours of delivery, under general anaesthesia or epidural block. All registrars and house surgeons were encouraged to apply the clip to the isthmus of the fallopian tube, preferably within 2 cm of the uterus. Identification of the fimbriae was imperative and this fact was always recorded.

Sterilisation accompanying caesarean section was occasionally done by Filshie clip but mostly by the Irving method.

Results

A total of 789 patients had Filshie clip sterilisations in the period 1 January 1983 - 30 June 1985. The average parity of these women was 4,4 and their average age 32,34 years. Of the total 59,3% were sterilised after 4 or fewer children; 28,3% after 3 or fewer children.

No sterilisation failures were encountered before 1 April 1985, i.e. for the first 27 months of the project. Since then 8 women pregnant subsequent to a Filshie clip sterilisation have presented at Paarl Hospital (Table I). This early failure rate of 1,02% is already worse than with the Vienna method practised at Paarl Hospital from 1976 to 1982 (5 pregnancies out of 1219 patients, or 0,41%). More failures after Filshie clip sterilisation can be expected as most patients have not yet been followed up for 2 years.

Discussion

Voluntary sterilisation is at present the most widely used contraceptive method in the world. About 95 million women depend upon it to control their fertility. In Panama 29% of women of reproductive age are sterilised, in Red China 27%, in South Korea 23%, in Thailand 19%, in the USA 17% and in Sri Lanka 17%.³ Acceptance throughout the world transcends all cultural and political differences. In 1980 almost half of all female sterilisations in the USA were *post partum*⁴ and in Latin American countries 49 - 71% of all sterilised women underwent postpartum procedures.⁵

Postpartum sterilisation has long been popular at Paarl Hospital, and about 20% of all patients who deliver there request the procedure.⁶ Failed sterilisation is an unfortunate and recurrent event and affects the entire community.⁷ Four

TABLE I. FAILURES OF FILSHIE CLIP STERILISATION

Age (yrs)	Parity	Gravity	Reason	Subsequent attitude/action
23	4	4	Unknown	Disillusion, refuses repeat
36	5	4	Unknown	Disillusion, refuses repeat
24	3	3	Unknown	Disillusion, refuses repeat
31	7	7	Unknown	Threatens litigation
37	7	7	Error in application of clip	Repeat bilateral salpingectomy
29	3	3	Tuboperitoneal fistula	Repeat bilateral salpingectomy
28	3	3	Unknown	Refuses repeat
36	6	7	Unknown	

of the recent failures have occurred in the black community of Mbekweni and this coincidental tragedy occurred at a time when tremendous acceptance of sterilisation was being experienced among black patients. Subsequently black patients have shown increasing reluctance about postpartum sterilisation, probably because news of the failures has rippled through the community. No community can afford resistance to sterilisation.

Filshie clip sterilisation on postpartum patients has now been abandoned at Paarl Hospital to avoid more failures. The old cut-and-tie Vienna method of tubal ligation has been re-introduced as this has proved the most permanent method of postpartum sterilisation in Paarl Hospital, with only 1 pregnancy in 250 procedures followed up for at least 5 years.

Most pregnancies occur within 2 years of a sterilisation procedure.⁸ More Filshie clip failures can accordingly be expected. A full account of the experience at Paarl Hospital will be given this year when 2 years have elapsed since the last Filshie clip postpartum procedure. It is not possible to evaluate the reasons for failure at this stage. Most of the patients have refused repeat sterilisation and are disillusioned with the procedure in general. Perhaps they will be persuaded to undergo laparoscopic evaluation and repeat sterilisation at a later date. Failures due to operator error are unlikely in view of the high standard of discipline practised at Paarl Hospital where the fimbriae are always identified before application of the Filshie clip to the isthmus portion of the tube. Although Filshie clip sterilisation of the postpartum patient appeared most promising in the earlier study, its further practice in the RSA with its restrictive abortion legislation cannot be advised.

REFERENCES

- De Villiers VP, Bulterijs OSPJ, Pattinson RC. Post-partum sterilisation met die Filshie-titanium-silikonrubber-klem. *S Afr Med J* 1983; **64**: 977-978.
- Indian Council of Medical Research. Tubal sterilization with Filshie clip. *Contraception* 1984; **30**: 339-353.
- Editorial. Female sterilization. *Population Reports* May 1985; **VIII**: C-125.
- Moses VI, Hughes JM. *Tubal Sterilization in Women 15 - 44 during 1979 - 1980 in the United States*. Atlanta, Ga: CDC, 1983: 121.
- McCarthy J. Contraceptive sterilization in four Latin American Countries. *J Biosoc Sci* 1982; **14**: 189-201.
- De Villiers VP. Post-partum sterilisations en die private praktisyn. *S Afr Med J* 1985; **67**: 132-133.
- De Villiers VP. Sterilization failure. *S Afr Med J* 1982; **61**: 589-590.
- Chi IC, Mumford SD, Gardner SD. Pregnancy risk following laparoscopic sterilizations in non-gravid and gravid women. *J Reprod Med* 1981; **26**: 289-294.