

## EDITORIAL : VAN DIE REDAKSIE

## OBSTETRIC FORCEPS, VENTOUSE TRACTION, PELVIC OUTLET SUCTION

The need for obstetric forceps to deliver the foetus alive must have made itself felt once in every 35 births for the last 6,000 years. Yet this simple little device was not made until well after the renaissance. Now, after three and a half centuries, it is obsolescent. Until 1733 all except the Chamberlens used only two methods of completing delivery of a cephalic presentation, these being craniotomy or internal version followed by extraction.

The esoteric nature of midwifery must have played its part, but it is astonishing that that supreme musical instrument, the violin, should have been constructed about the same time as Peter Chamberlen's forceps and perfected by Stradivari before the forceps came into general use. The Tarnier axis-traction instrument brought mechanical perfection, but Das in his book in 1929 described 550 different varieties.

The obstetric forceps represents the greatest advance achieved in the field of midwifery. Before its advent, childbirth of a difficult nature was the province of none but the most dexterous. Even so the foetal loss was appalling. Against this background the benefits of the forceps are almost incalculable. Only a few months ago we learned from the unequalled British Report *Perinatal Mortality*<sup>1</sup> that small babies weighing 4½ - 5½ lb. appeared to be protected by forceps delivery. A very large foetus of over 9½ lb. had a high mortality when delivered by forceps. Herein lies the purpose of the instrument—it should secure the head for traction without compressing it.

Unfortunately the use of this invaluable instrument demanded an element of skill and experience, not to mention suitable temperament. A misjudged case, say of disproportion or malposition, can lead to grievous disappointment and more.

Thus it came about that certain obstetricians looked in other directions for a substitute. The search lasted 250 years and culminated in Malmström inventing his chain traction which depended on fixation to the scalp with a suction cup. The foetal salvage which has attended its use in many countries, notably some in Europe, has been so significant that the method has become indispensable. When there is foetal distress, assisted delivery becomes imperative—and for 200 years the obstetric forceps was used. But in some hands, and even in some communities, the foetal loss is six to seven times as high as elsewhere. This has led to a distaste for forceps delivery with a high incidence of foetal distress and ultimate death. Malmström's technique stopped this decay.

Inquiry into the development of the ventouse (Malmström) brings to light an interesting history. The first attempt was made as long ago as 1706 by Young. At this time the Chamberlen forceps was being used in secret by the family, but its existence, though not its precise structure,

had become known. The most surprising aspect of the delay in the invention of forceps was that men knew for a hundred years that the thing they wanted so badly had been made successfully, and yet they could not conceive of its form. Das, in his book, shows that there was nothing even remotely resembling forceps for scores of centuries. On the basis of all the available information we reject the suggestion that Avicenna (AD 980 - 1030) or Rueff (1554) were responsible for the obstetric forceps, not to mention Adams' fantasy about the instrument from Pompeii.

The Chamberlens are accorded genius by most writers dealing with their fortunes. This was undoubtedly true of Dr. Peter, the son of Peter the Younger, and it has now been shown that he was the inventor of the obstetric forceps. Smellie seems to have been the first to understand the so-called mechanisms of labour, but he had not arrived on the scene and, in that unenlightened age, the family of this singularly appropriate name (Chamberlen) rose above their peers in skill and insight: they understood better than anyone else what was required—possibly better than Smellie did later—and they shaped the necessary tool. The fenestrated blades alone show their inspiration.

It would seem that we owe much to the Chamberlen family, for reflection will show that the domination of the unenlightened midwife in Europe could not alone have retarded progress: it is much more likely that the men concerned were themselves ignorant of the processes involved and that the sanctimonious Smellie did not have it in him to devise such an instrument. How was it that the obstetric stalwarts could not fashion the *mains de fer* when they knew that this had already been accomplished?

Stanley Miller, of Johannesburg (1963),<sup>2</sup> has given a very good account of the development of the ventouse. Although this principle was considered before the forceps became available to all, Simpson in 1849 made an 'air tractor' saying 'it may perhaps give us a simpler and safer obstetric power for some cases than even the forceps'. Similarly, Arnott discussed this idea earlier (1829), 'as a substitute for the steel forceps, in the hands of men who are deficient in manual dexterity whether from inexperience or natural ineptitude'. Then came a rubber cup and solid handle (McCahey, 1890), Kuntzsch in 1912 made his vakuumbhelm. Torpin in 1938 reported a small series of cases and in 1947 Couzigou introduced his *ventouse euto-cique*. It is noteworthy that the device was at first used in the first stage, mainly in cases of inertia. Thus Koller in 1950 applied weight traction by this method. Getting closer to the ultimate, and now obvious, was Gastaldo in 1951. He put a type of 'Gasyd' up the vagina and thought he could suck the foetus down. Finderle made a trumpet in 1952 which he used for three years instead of



forceps on 132 cases. Malmström began his particular activities in 1952, first of all in uterine inertia, until improvements in design culminated in 1957 in his extractor, so widely used today.

Gasyd did not emerge as the result of a search for a device to effect decompression during the expulsive stage of labour. It followed soon after the early successes of anterior abdominal-wall decompression used of necessity only during the first stage. A tilting table had been made for certain experiments. This had a vent to receive the pregnant abdomen which was projected into an airtight chamber. It appeared that, with the thighs adducted, a seal could easily be made around buttocks and legs, thus securing a partial vacuum around the pelvic outlet. Trial showed this deduction to be correct.

A bucket with a large vent surrounded by rubber was first used and later perspex cylinders. A suction pump was used and pressure was lowered by 100 mm.Hg, which is the same as 2 lb. per sq. inch. The perfected cup fits the vulva and related parts well and its transparency is an advantage. Exhaustion of the contained air has been made both simple and safe, the rubber bulbs being capable of a pressure drop of slightly over 100 mm.Hg.

Heyns *et al.*<sup>3</sup> explained the mechanics of outlet decompression. Experimental findings support their claims.<sup>4</sup> To produce a partial vacuum in the pelvic cavity, the brim above it has to be sealed off from the rest of the abdomen in which a pressure just above that of the atmosphere

naturally prevails. A flexed foetal head or third-stage uterus is of sufficient bulk to effect the seal. A low-pressure region would exist in the lower part of the pelvis. Thus there would be a pressure gradient between the abdomen at atmospheric pressure above and the pelvic cavity below. The foetal head or placenta is consequently forced downwards.

The conclusion is that decompression in the second stage is much like forceps extraction, the difference being in its favour and based on a reduction of resistance or friction to the foetal head: (a) less work has to be done in the birth canal itself, and (b) since contractions are not necessary, placental circulation is not interfered with. Thus this foetal hazard is absent.

In the normal expulsive stage the foetal trunk is used for the transmission of axial pressure. Thus, in so far as nothing but the foetus is used as a battering ram, its head takes the full force.

With decompression other pelvic viscera also contribute to the forcing open of the pelvic diaphragm. The foetal head accordingly does not take the full force of the pressure gradient. The force expelling the foetus naturally is of the order of 22 pounds (10 kg.), but with decompression it is less than 8 pounds (3.6 kg.).

1. Butler, N. R. and Bonham, D. G. (1963): *Perinatal Mortality*. London: Livingstone.
2. Miller, S. (1963): *Leech (Johannesburg)*, 33, 83.
3. Heyns, O. S. *et al.* (1960): *J. Int. Coll. Surg.*, 34, 333.
4. Roberts, W. A. B. (1964): *S. Afr. J. Obstet. Gynaec.*, 2, 29.

## DIE PRAKTISYN UIT DIE OË VAN DIE PASIËNT

Dit is onseker tot hoe 'n mate 'n geneesheer in die beoefening van sy praktyk hom deur die menings van leke moet laat beïnvloed. Wat die dokter as 'n belangrike oorweging beskou, mag vir die pasiënt onbenullig voorkom. Aan die ander kant moet die 'ideale' dokter, soos deur die publiek gesien, aan sekere vereistes beantwoord wat nie noodwendig deur lede van die beroep nagestreef word nie. Aangesien elke dokter, wat in die aktiewe praktyk staan, op die ondersteuning van die publiek moet staatmaak, is dit net so wel om pasiënte se oorweginge by die keuse van 'n dokter in ag te neem.

Die Instituut vir Navorsing op Verbruikersbelange, in Brittanje, is 'n onafhanklike nie-profitmakende organisasie wat daarop ingestel is om 'navorsing te onderneem om vas te stel watter goedere en dienste—kommersieel, professioneel en publiek—op die oomblik die behoeftes bevredig en aan die aanspraak wat hulle maak voldoen'. Hierdie onderneming het nou ook die algemene praktyk uit die 'verbruiker' se standpunt onder die vergrootglas geneem en met etlike bevindings voor die dag gekom wat vir die profesie interessant behoort te wees.<sup>1</sup>

Volgens hierdie gegewens stel die publiek die volgende vereistes aan 'n huisdokter, in volgorde van belangrikheid:

1. Vaardigheid
2. Bereidwilligheid om 'n besoek af te lê
3. Die vermoë om vertrou te wek
4. Vriendelikheid en insig
5. Beskikbaarheid in nood
6. Kennis uit notas van 'n pasiënt se vorige klagtes
7. Ongejaagde houding

8. 'Gee altyd 'n deeglike ondersoek'

9. Moderne ondersoekkamer en toerusting

10. Geen lang waggery nie

11. 'Hy het 'n lekker, skoon en warm wagkamer.'

Eienaardig genoeg word daar relatief min belang geheg aan die perseel waar die praktyk beoefen word. Ander interessante puntjies wat uit die opname te voorskyn gekom het, was dat slegs een uit 103 die telefoongids geraadpleeg het wanneer 'n dokter gekies is. Die raadgewing van vriende is hoog gestel. Die naambordjie is agt keer genoem dog slegs vier het ag geslaan op die dokter se kwalifikasies, wanneer hulle 'n keuse gemaak het. Slegs 19 uit 107 pasiënte het weens ontevredenheid van dokter gewissel. Die behoefte vir die beter beoefening van voorkomende geneeskunde op die algemene praktisyn se vlak is benadruk.

Aangesien die gehalte van die mediese diens wat gelewer word, beide by die publiek en by die profesie as die hoogste vereiste geag word, moet die meeste klem nog op die opleiding van die algemene praktisyn gelê word. In 'n hoofartikel in *The Lancet*<sup>2</sup> getitel 'Towards better personal care' word o.m. verklaar:

'As die toekoms van beter persoonlike versorging in oënskou geneem word, is niks waarskynlik so belangrik as die opleiding van die gesinsdokter nie, want 'n goed-opgeleide praktisyn sal meer waarskynlik op bevredigende voorbehoude vir sy praktyk aandring . . . gesinspraktyk vereis net soos spesialisasie 'n sistematiese kursus van voorbereiding. Alhoewel hierdie behoefte in baie oorsese lande aangevoel word, kan Brittanje nog niks in hierdie



rigting aanbied nie. Is daar 'n universiteit met die nodige vooruitblik, die moed en die vermoë om so 'n kursus aan te pak?'

Dieselfde woorde geld ook vir Suid-Afrika. Die Suid-Afrikaanse Kollege vir Algemene Praktisyns is reeds 'n geruime tyd lank al besig om met die praktiese opleiding

van studente te help deur fasiliteite vir hulle te skep om gedurende hul kliniese jare saam met gesinsdokters te werk.<sup>3</sup> Ander praktiese stappe sal verwelkom word.

1. Editorial (1964): *J. Coll. Gen. Practit.*, **43**, 158.

2. Leading article (1963): *Lancet*, **1**, 430.

3. Van die Redaksie (1964): *S. Afr. T. Geneesk.*, **38**, 250.