

DR. MICAH MAJALE MEMORIAL LECTURE



Dr. Majale is undoubtedly regarded as the father figure of orthopaedics in Kenya and in the Eastern Africa Region in general. He is the one who established the Orthopaedic Unit at Kabete and Kenyatta National Hospital. Orthopaedic patients came to him from many parts of Eastern Africa.

Dr. Majale was born in Samia, Busia County in 1924. He went to Maseno and Alliance High Schools. He graduated from Makerere University in 1953 and did his Internship at King George VI Hospital. He then went to France where he specialized in orthopaedics. He worked at Kenyatta National Hospital (KNH) until his death in April 1978. I had the privilege of working under him in 1967 as an intern and between 1970 and 1972 as a Senior House Officer (SHO).

Dr. Majale used to tell me how they were mistreated by the *mzungus* especially ward sisters and matrons. Under Dr. Majale's guidance there were weekly grand rounds attended by all Nairobi Orthopods and other doctors. They included Shamshudin Suleiman, Bill Brodie, John Church, and from private practice: John Beecher and David Stuart. Ashraf Sheikh joined the group later.

During that period, Mr. J. Bodo was the Nyanza Provincial General Surgeon until April 1972 when he went for higher training in Oswestry, England. He joined the Orthopaedic Unit at KNH on his return in 1973. There were also weekly surgical meetings held on Thursdays and attended by most surgeons in Nairobi. These were informative, interesting and popular. Mr. Suleiman took over from Dr. Majale but later became a professor at the Aga Khan University in Pakistan. Mr. J. Bodo took over from him as the senior government orthopaedic surgeon.

Dr. Majale was humble, generous and social. Patients used to consult him from outside Kenya, like from Somalia and Ethiopia. He used to work from morning to evening without a break. I learnt a lot especially paediatric orthopaedics.

I will now discuss with you some of the paediatric orthopaedics I have practised here at the Kenyan Coast.

LOWER LIMB DEFORMITIES IN CHILDREN AT THE KENYAN COAST- THE CHANGING PATTERN OF PRESENTATION

INTRODUCTION

In this paper, I present a review of lower limb deformities that myself, (Mr. Ambeva) and the late Mr. Mc Vicker, managed over a period of 10 years between 1978 and 1987 at APDK Rehabilitation Clinic, Port Reitz Mombasa. I was honorary consultant at the APDK from 1977 to 2002 (25 years). The clinic was started as Polio Clinic by the Round Table who ran it until 1971 when they handed it over to the Association for the Physically Disabled of Kenya (APDK) which was founded in 1958. Although it was initially called Polio Clinic, it actually deals with all crippled children. The name was changed later to APDK Rehabilitation Clinic.



MATERIALS AND METHODS



Patients were seen at the various mobile clinics throughout and were seen by physiotherapists and referred to the Polio Clinic in Mombasa for doctors to review. I held a clinic at the APDK Port Reitz once a month and operated on the patients every Thursday of the week at the Mombasa Hospital. The catchment areas were Mombasa, Kilifi, Kwale, Lamu, Tana River, Taita Taveta and parts of Ukambani.



Table 1 shows you the number of post polio cases in relation to other deformities seen at the clinic.

Whereas the total number of new cases has remained the same, there was marked decrease in the number of post polio cases and increase in the number of cerebral palsy and spastics as well as genu varus and valgus over the ten year period. We also saw a large number of club feet and a number of other congenital deformities. Most cases with cerebral palsy and spastics were under 6 years of age included microcephaly, hydrocephalus as well as those affected by birth trauma and other diseases. Other cases included spina bifida, muscle dystrophy, rheumatoid arthritis, malnutrition with delayed milestones and some injuries like Erb's palsy and fractures. We also saw a variety of congenital deformities. I will now discuss the post polio deformities in more detail.

Table 2 shows the breakdown of the yearly attendance according to age. From the Table, it is evident that we have progressively been seeing fewer younger children and more of the older ones.

Table 1
A.P.D.K. Port Reitz Polio Clinic yearly attendance of new cases from 1978 to 1987

Year	Total	Polio	CP/SP	CV/V	CTEV	Others
1978	163	97	33	1	10	22
1979	133	80	37	3	4	9
1980	193	118	40	3	15	17
1981	164	99	26	8	7	24
1982	135	65	38	1	14	17
1983	176	101	35	5	6	29
1984	160	69	56	2	13	20
1985	178	76	54	6	17	25
1986	160	48	50	14	22	26
1987	165	35	63	12	15	40
Total	1,627	788(48.4%)	432(25.6%)	55(3.4%)	123(7.5%)	229(14.1%)

Key:

CP/SP = Cerebral Palsies and Spastics

GV/V = Genu Valgus and Varus

CTEV = Congenital Talipes Equino Varus

Table 2
New polio cases seen from 1978 to 1987

Year	Total	Age distribution (years)		
		6-10 No. (%)	1-5 No. (%)	< 10 No. (%)
1978	97	62(63.9%)	12(12.4%)	23(23.7%)
1979	80	56(70%)	10(12.5%)	14(17.5%)
1980	118	83(70.3%)	25(21.2%)	19(8.5%)
1981	99	69(69.7%)	22(22.2%)	8(8.1%)
1982	65	56(55.4%)	16(24.6%)	13(20%)
1983	101	74(73.3%)	11(10.9%)	16(15.8%)
1984	69	33(47.8%)	14(20.3%)	22(31.9%)
1985	76	42(55.2%)	17(22.4%)	17(22.4%)
1986	48	16(33.3%)	14(29.2%)	18(37.5%)
1987	35	10(28.6%)	11(31.4%)	14(40%)

We also took note of which side of the lower limb that was affected in each case (Table 3). From the Table, it is clear that the majority had both

lower limbs affected. Where only one limb was affected, we found no difference between the left and the right side.

Table 3
New polio cases seen from 1978 to 1987

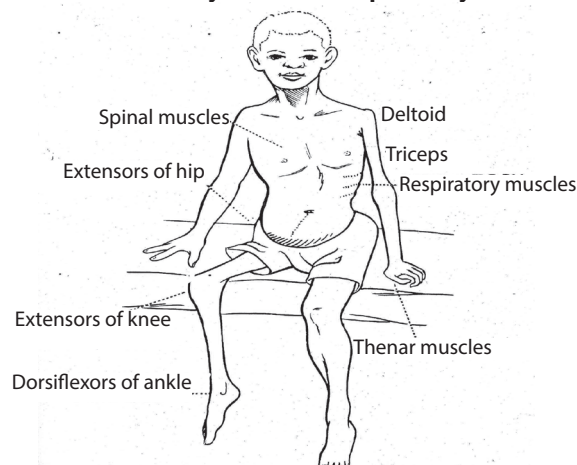
Year	Total	Left	Right	Bilateral
1978	97	23	26	48
1979	80	16	11	53
1980	118	32	24	62
1981	99	28	19	52
1982	65	15	15	35
1983	101	28	32	41
1984	69	17	19	33
1985	76	16	17	42
1986	48	11	12	25
1987	35	16	10	9
Total	788	202(25.5%)	185(23.5%)	401(50.9%)

Causes of deformities

A wide variety of deformities develop in poliomyelitis as a result of muscle imbalance and widespread soft-tissue contractures. The most common deformities of the lower extremity in the post poliomyelitis children seen were:

- (i) Hip flexion
- (ii) Knee flexion
- (iii) Ankle flexion

Muscles commonly affected in poliomyelitis



Treatment: There is no cure for polio. It can only be prevented by polio vaccine. We only managed post-polio deformities. Other deformities were managed as they occurred. The main objective is to get the child on to its feet and, where possible, to improve good balance, stability and gait.

The hip: Flexion contracture with occasional abduction was the most frequent deformity about the hip. Most of the patients were managed by subcutaneous tenotomy plus skin traction for six weeks.

The knee: The loss of active extension at the knee in the presence of strong hamstrings favours the development of a flexion contracture of the knee. The opposite situation, a strong extensor and weak flexors encourages the development of a recurvatum deformity (hyperextension). A strong biceps (which inserts on the fibular head), plus other weakened hamstrings, and insufficiency of the quadriceps results in a flexion, abduction (valgus) and external rotation deformity of the tibia at the knee. Flexion contractures of the knee were mainly managed by manipulation plus serial plaster casts which were changed every two weeks. Occasional release of the hamstrings was performed.

The foot and ankle: Paralysis of the muscle acting about the foot and ankle result in various types of functional loss and corresponding deformities, depending on the muscle imbalance between the involved muscles and remaining musculature. The loss of motor power acting about the joints results in loss of stability of these joints, which worsens as ligamentous and capsular support is lost. Eventually adaptive bony structural changes occur, rendering the deformity permanent. The following operations were the most commonly performed:

- (i) ETA-Nearly always closed.
- (ii) Tendon transfers. Tibialis anterior and tibialis posterior are the most commonly used with good results.
- (iii) Bony stabilizing operations
 - Triple arthrodesis –Common but should be avoided in young children because the deformity would recur with moulding.
 - Rotational osteotomy of the tibia.
 - Epiphyseal fusion and stapling.

Support: Shoes and calipers were prescribed as necessary using Prof. Huckstep's method. We preferred using clogs except where T-straps were required for ankle support.

Table 4
Yearly attendance and type of treatment given










Year	No. of patients	Manipulations + Pop	Operations
1978	1236	163	47
1979	1124	135	55
1980	1447	215	75
1981	1297	302	84
1982	1243	320	93
1983	1324	369	66
1984	1194	307	79
1985	1073	404	100
1986	921	437	105
1987	846	428	101
Total	11,705	3,180(27.1%)	805 (6.9%)










- Main objective is to get the child on to its feet, improve stability and gait.
- Hip flexion contractures with occasional abduction was the most frequent deformity.
 - Subcutaneous tenotomy + Skin traction x6/52
- Knee flexion contractures.
 - Manipulation + serial plaster casts every two weeks.
 - Occasional release of hamstrings performed.
- Foot: ETA- Nearly always closed
 - Tendon transfers

- Bone stabilizing operations: Triple arthrodesis (avoid in young children), rotational tibial osteotomy and epiphysial fusion and stapling.

- Support: Shoes and calipers or clogs
- Prof. Huckstep's method

Sample cases

Before	Before	Before
		
Polio: 5 years-1983	Club feet 1982	Arthrogyriposis congenita multiplex
After	After	After
		
Polio: 22 years, 2000	1984	
Before	Before	Before
		
Genu valgus		Windswept deformity

<p>After</p>  <p>Same- 1985</p>	<p>After</p> 	<p>After</p> 
<p>Before</p>  <p>Congenital malformation</p>	<p>Before</p>  <p>Club feet</p>	<p>Before</p>  <p>Genu valgus</p>
<p>After</p>  <p>After amputation</p>	<p>After</p> 	<p>After</p> 

DISCUSSION

Out of the 1,627 new cases seen at the Port Reitz Polio Clinic, in 10 years, 48.4% had post polio deformities of the lower limbs. The number of those affected bilaterally was twice as much as those affected unilaterally. But there was no significant difference between the left and the right side. This is contrary to the findings of Dr. IJ IP Reassen (The treatment of post-polio contractures-ASEA proceedings Vol.5 1982). In his paper he stated that in patients with contractures of one leg, the right was twice as commonly affected than the left.

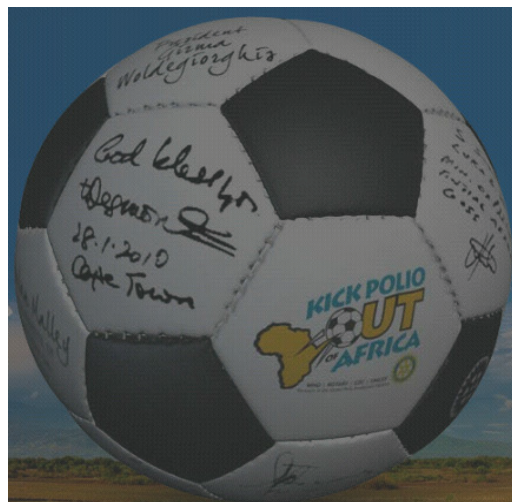
The last eight years show a gradual drop in the incidences of polio and increase of other target group diagnosis such as cerebral palsies congenital deformities like club feet and knocked knees and bowed legs. Others include trauma like burns, road accidents, epilepsy etc.

This is due to the good job the public health workers have been doing in their immunization campaign programme in the rural areas. As a result, we are seeing less of post polio cases both in number and severity of deformity. Instead there has been an increase of other deformities like club feet, knee deformities, spastics and others.

Here in Kenya the Government is actively involved through the KEPI programme which is being supplemented by various organizations like Rotary International Polio Plus Immunization Programme. Although post polio deformities will be with us for sometime even after eradication of the disease, we do hope that neglected cases will become a matter of the past.

CONCLUSION

Remember: Disability is not inability. These people need our help as orthopods. We can put a smile on their faces. Let us kick Polio out of Africa and eradicate Polio in the World.



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This paper was presented during the 12th Kenya Orthopaedic Association Annual Scientific Conference held from 13th -15th June 2018 at Pride Inn Hotel Shanzu, Mombasa