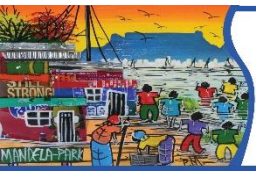


A Novel Technique of Nerve Wrapping in Microvascular Decompression of the Trigeminal Nerve; Our Experience of over 100 Cases

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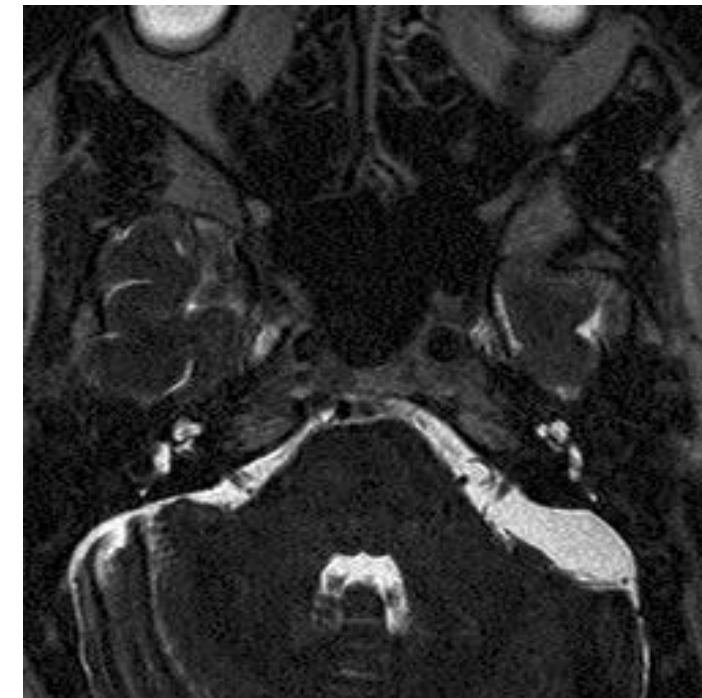
Background

CP Angle pathologies causing TGN published since 1930s

Trigemintomy often performed to alleviate symptoms

Taarnhoj (1952) described decompression of nerve through temporal approach

Popularised by Gardner



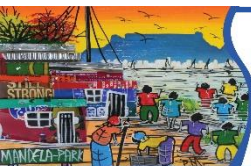
Methods

Retrospective

Identified from all theatre lists Dec 2008 to Dec 2016

Data collected from electronic notes, theatre records, clinic letters

Patient questionnaire



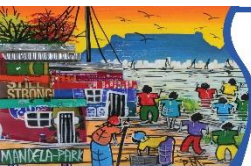
Technique

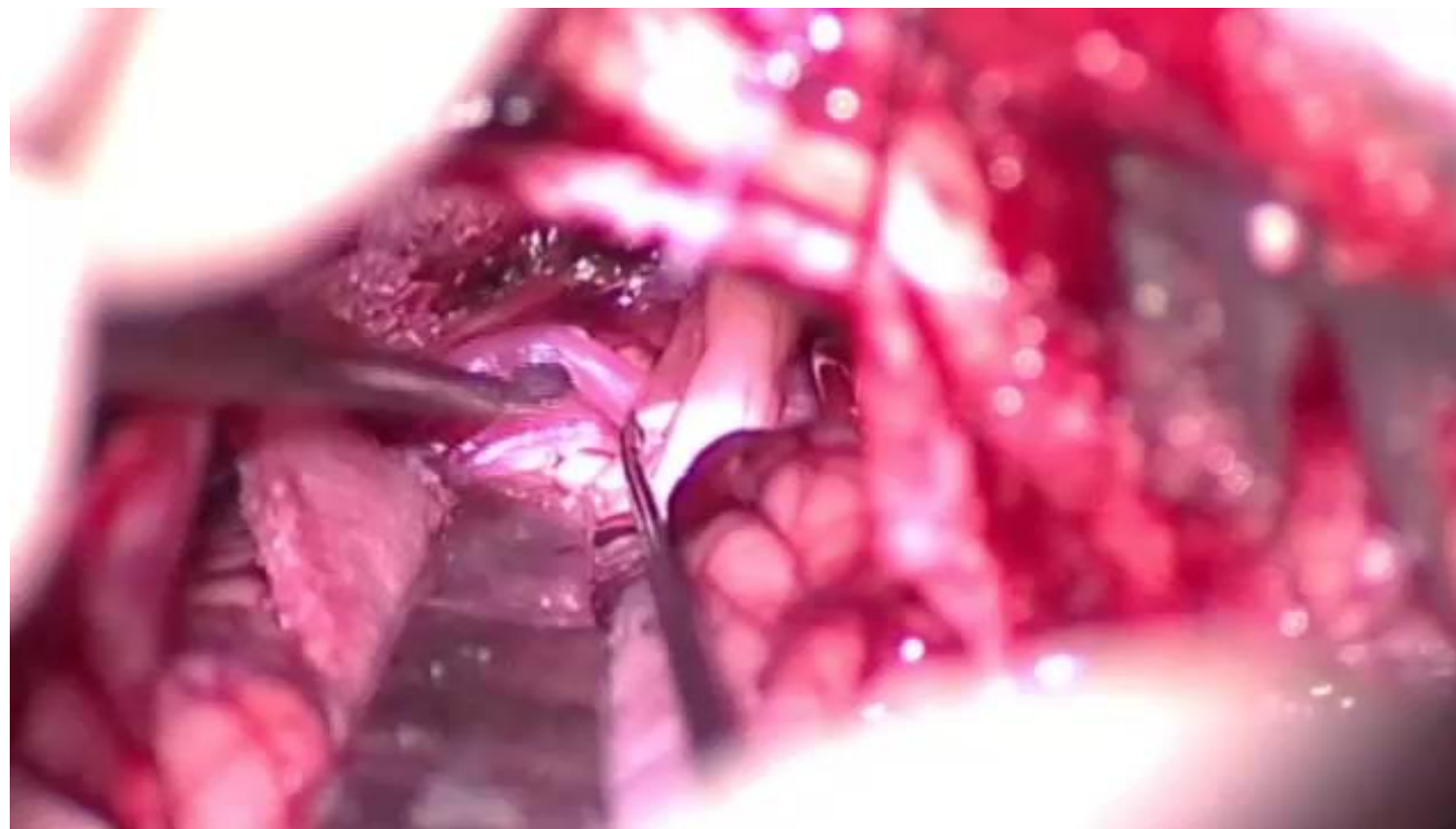
Park bench / lateral position

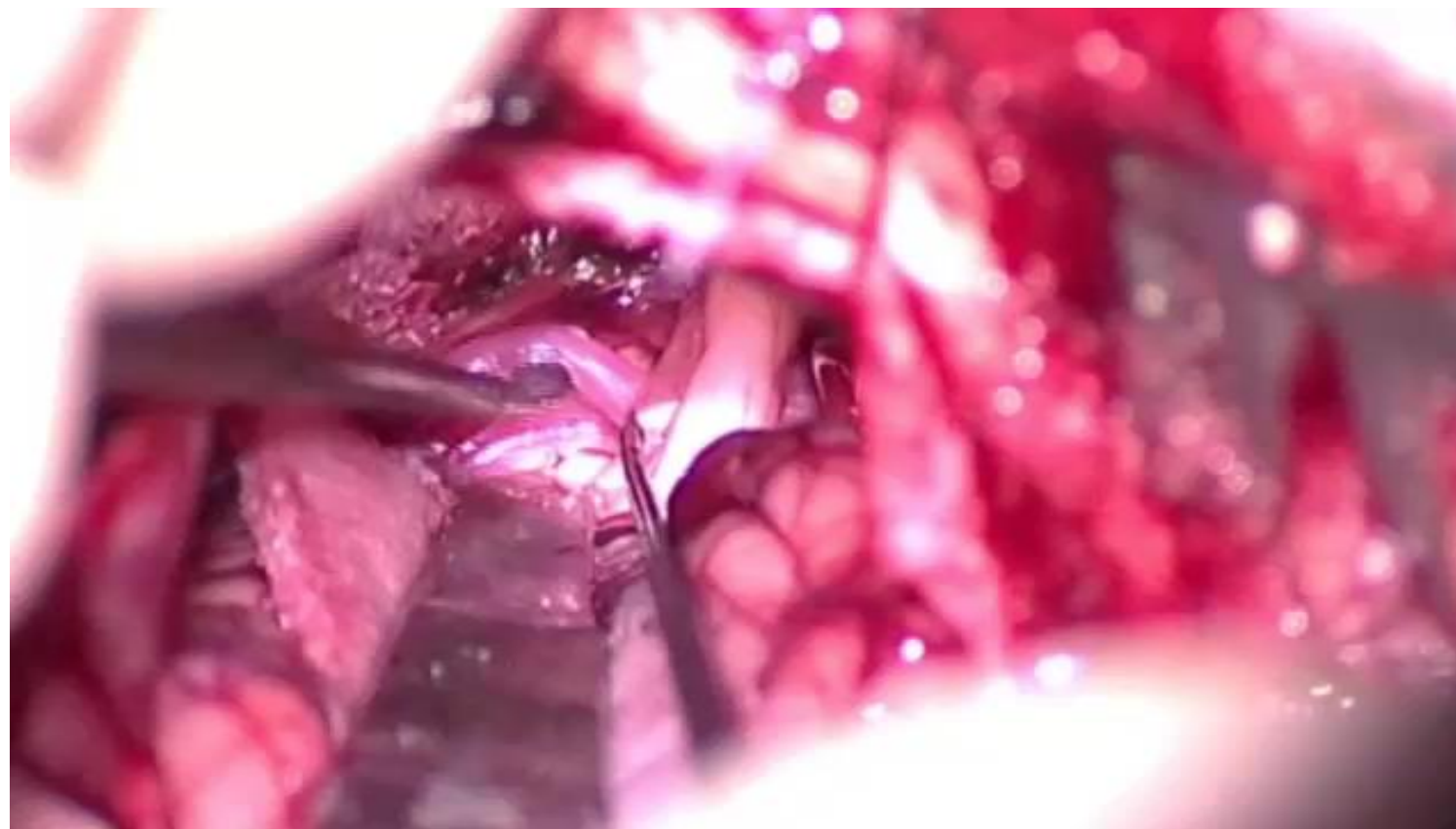
All cases post 2010 conducted with IOM - BSAER

1.5cm diameter circular retrosigmoid craniotomy

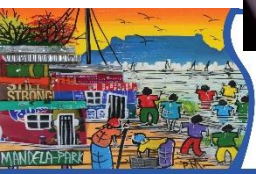
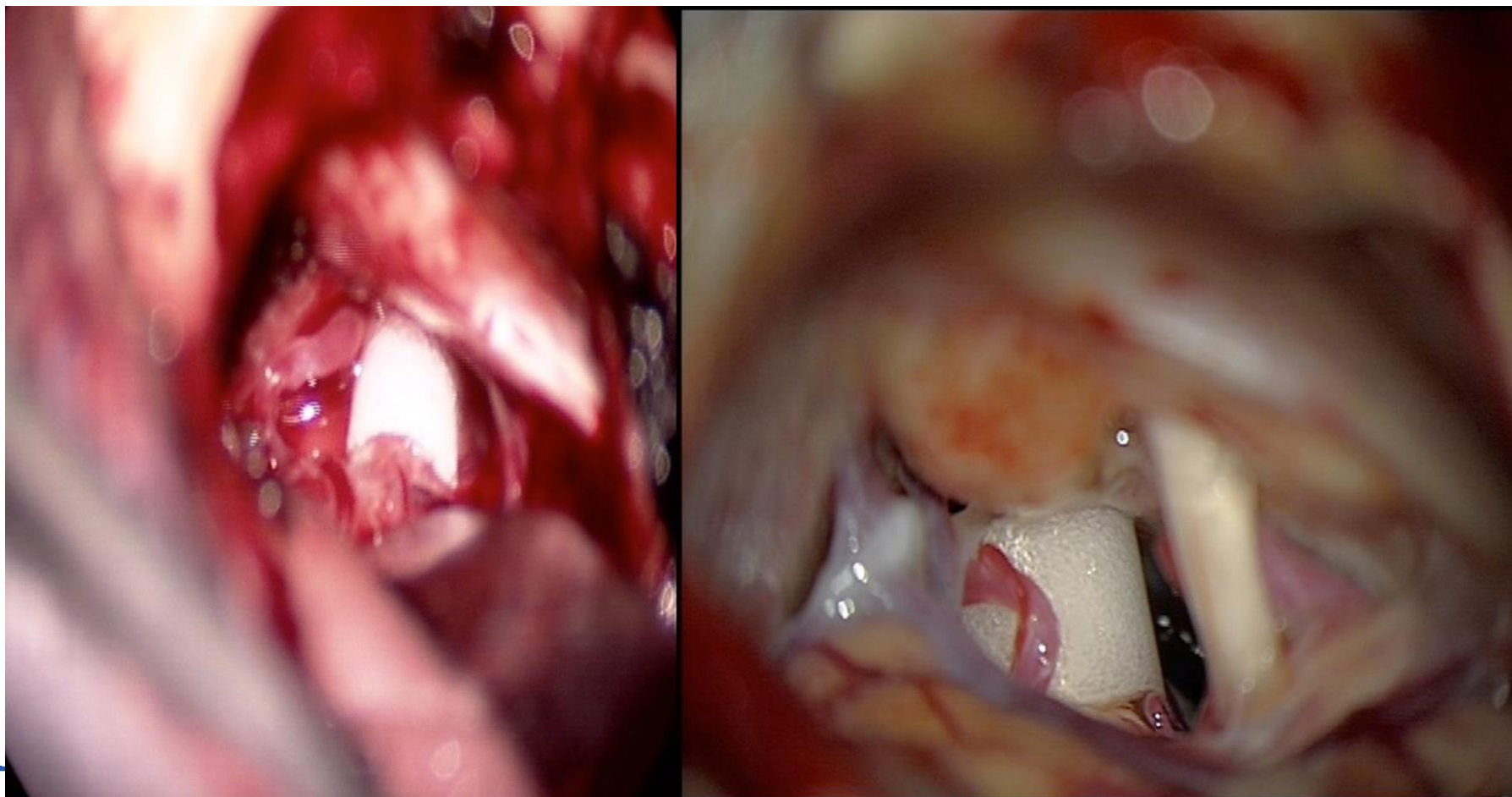
Cylindrical Teflon sheath used to cover the nerve entirely in its cisternal course







Construct in situ



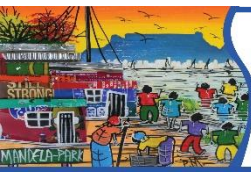
Results

All procedures performed by same surgeon

108 cases – 3 excluded for incomplete records. Further case excluded for MS

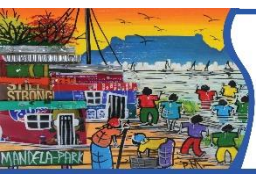
M:F – 50:52

Mean age 58 (27 – 82)



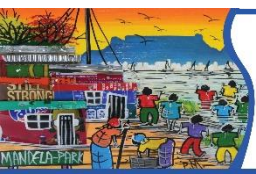
Age

Age	No. of Patients	% of Patients
Below 50	27	26
50 to 70	62	59
Above 70	16	15
35 or below	7	7



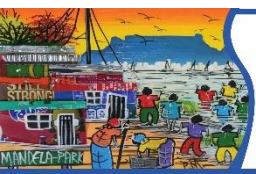
Pain Distribution

Distribution	% of Patients
1	8.33
2	22.62
3	15.48
1, 2	8.33
2, 3	34.52
1, 2, 3	10.71



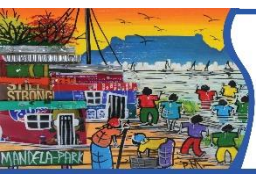
Pre-op Medications

Medication	% of Patients
Oxcarbazepine	9.80
Pregablin	4.58
Tegretol	18.30
Gabapentin	15.03
Carbamazepine	33.33
Lamotrigine	12.42
Phenytoin	2.61
Oramorph	1.31
Baclofen	2.61



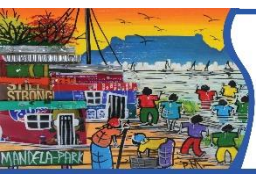
MRI Findings

MRI Findings	No. of Patients	% of Patients
Vessel in contact with nerve	94	90
No vessel	11	10
Other		
Small cisterns	4	4
Arachnoid Cyst	1	1
Epidermoid	1	1



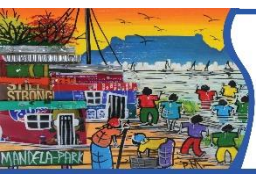
Intra-Op Findings (1)

Vessel	No. of Patients	%
1 Artery	79	75.24
2 Arteries	15	14.29
Veins	61	58.10
Artery and Vein	52	49.52
Vein only	9	8.57



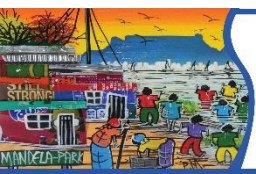
Intra-Op Findings (2)

Vessel	Primary	Secondary	Total	%
SCA	79	0	79	52.67
AICA	0	3	3	2.00
Vein	8	42	50	33.33
Unspecified	12	6	18	12.00



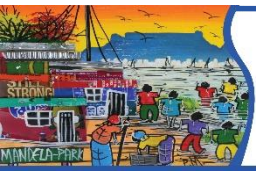
Vessel Location

Vessel	No. of Patients	% of Patients
Superior	40	38.10
Inferior	27	25.71
Lateral	6	5.714
Medial	8	7.62
REZ	19	18.10
No Vessel	1	0.95
Unspecified	4	3.81



Complications

Complication	No. of Patients	%
Balance	5	4.67
Vertigo	3	2.80
Meningitis	2	1.87
Wound Infection	3	2.80
Hydrocephalus	7	6.54
Bleed	2	1.87
Hearing loss	5	4.67
Pseudomeningocele	1	0.93
Bells	3	2.80
SIADH	1	0.93
Venous Sinus Thrombosis	1	0.93
CSF leak	2	1.87
Nerve palsies	4	3.72
Papilloedema	1	0.93
Recurrence	8	7.62

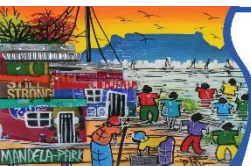


Others

1 Rhizotomy performed in an MS patient (Neurophysiology guided V2, V3) when no vessel found

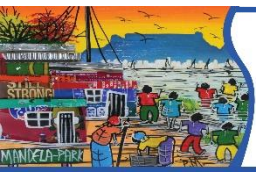
1 case of RIP secondary to venous sinus thrombosis, after uneventful recovery. 6 days postop

1 case of failed procedure – anatomical. Reoperation successful.



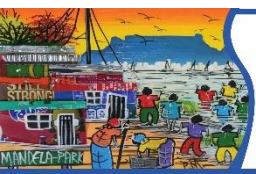
Relative Risk - Age

Age	No. of Recurrence	Relative Risk	95% CI	P-Value
Below 50	4	5.7	1.1 – 29.8	0.036
50 to 70	2	0.3	0.07 – 1.8	0.21
Above 70	0	0.4	0.02 – 6.9	0.53
35 or below	3	14	3.4 – 57.0	0.0002



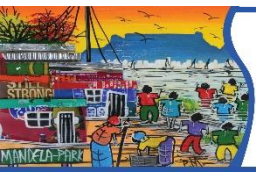
Relative Risk - MRI Findings

MRI Findings	No. of Patients	Relative Risk	Confidence Interval	P-Value
No vessel	1	1.7	0.2 – 13.3	0.61
Small cisterns	2	12.6	3.2 – 49.8	0.0003



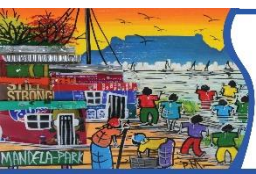
Relative Risks – Pain Distribution

Distribution	No. of Recurrence	Relative Risk	95% CI	P-Value
1	1	2.8	0.4 – 20.8	0.31
2	1	0.9	0.1 – 7.3	0.09
3	2	3.5	0.7 – 17.4	0.12
1, 2	0	0.9	0.05 – 15.4	0.97
2, 3	2	1.3	0.2 – 6.5	0.79
1, 2, 3	0	0.7	0.05 – 12.3	0.84



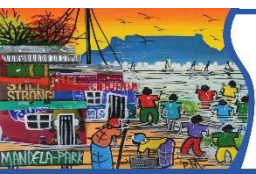
Relative Risk – Intra-op finding

Vessel	No. of Recurrence	Relative Risk	Confidence Interval	P-Value
1 Artery		51.6	0.2 – 13.4	0.64
2 Arteries		11.2	0.2 – 9.6	0.86
Veins		30.7	0.2 – 3.4	0.68
Artery and Vein		31.0	0.2 – 4.8	0.98
Vein only		00.8	0.05 – 13.7	0.90



Vessel Location

Vessel	No. of Recurrence	Relative Risk	Confidence Interval	P-Value
Superior	3	1.6	0.3 – 7.7	0.54
Inferior	0	0.2	0.01 – 3.7	0.29
Lateral	0	1.1	0.07 – 17.9	0.95
Medial	0	0.8	0.05 – 13.7	0.90
REZ	2	2.3	0.4 – 11.5	0.32
No Vessel	1	4.0	0.3 – 49.9	0.28



Importance of non-compressive technique?

SINDOU ET AL (2007)

82% cure non-compressive technique vs 67% in comparison group over 15 year follow up

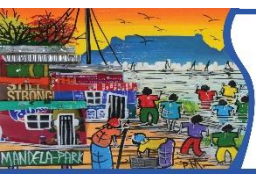
No significant difference in recurrence other than non-compressive technique

OUR SERIES

94% cure by novel technique over 8 year follow up

Significant difference in recurrence based on age and presence of small cisterns

Comparable morbidity outcomes to other large series



Conclusion

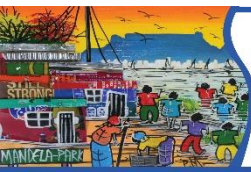
MVD is a highly successful operation for TGN for selected patients

Our novel technique provides excellent results and disputes the notion of needing a no touch technique at all times

Outcome shown to be influenced by age or presence of small cisterns

Our outcomes are comparable to those of other large series

We aim to maintain our database and monitor our results





Thank you