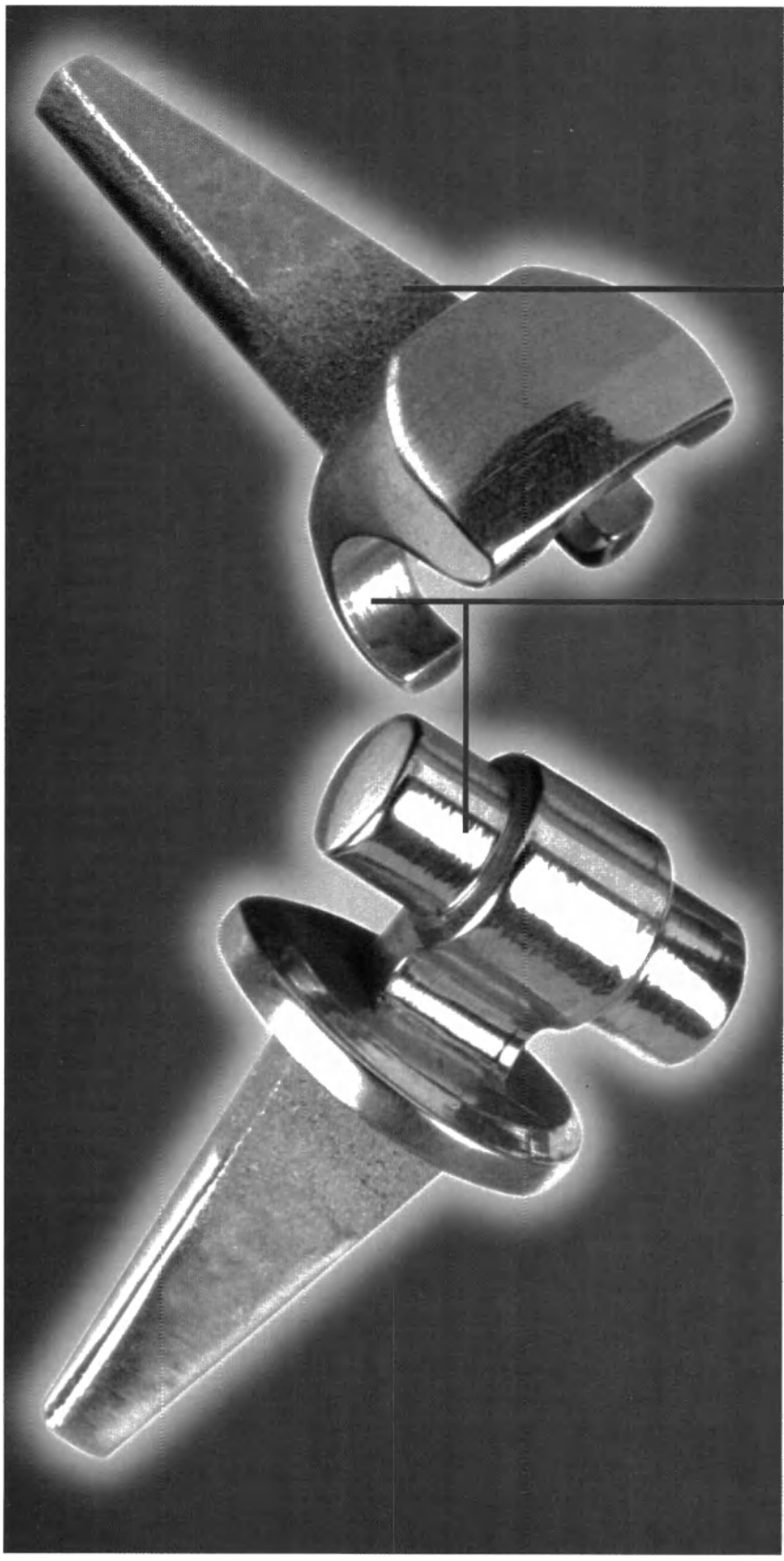
THE SOUTH AFRICAN SOCIETY
FOR SURGERY OF THE HAND

DIE SUID-AFRIKAANSE
VERENIGING VIR HANDCHIRURGIE

Congress 37 Kongres

4-5 September 2006
Durban

LPM PIP JOINT REPLACEMENT



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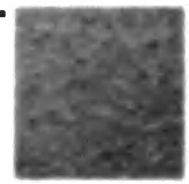
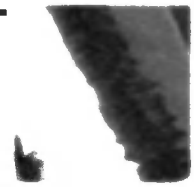


TITANIUM PLASMA SPRAY FOR CEMENTLESS FIXATION



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THE SOUTH AFRICAN SOCIETY FOR SURGERY OF THE HAND

37TH CONGRESS
DURBAN
4-5 SEPTEMBER 2006

CONGRESS PROGRAM

CONTENTS

MESSAGE FROM THE PRESIDENT OF SASSH

Dear Members, Participants and Colleagues

Welcome to Durban for our Annual Congress. We will again enjoy the facilities of the Elangeni Hotel. We are also happy to have Prof Michael Tonkin with us as invited guest speaker. This will be his second official visit to our country. We are looking forward to his practical lectures and share in his vast experience in Hand Surgery. My thanks to Drs Daya and Wells for compiling the academic program. An interesting social evening awaits you on the ship.

And then Hendrika, the force behind the scenes. Thank you as always, Hendrika!

Please enjoy the congress, academics, networking and social in Durban.

THEO LE ROUX

MESSAGE FROM THE CONGRESS CHAIRMAN

Dear Colleagues

From KwaZulu-Natal a very warm welcome to you all. We are proud to host the 37th annual congress/instructional course of The South African Society for Surgery of the Hand in Durban. Begin the morning with a jog along the Golden Mile or simply enjoy the warm current of the Indian Ocean. The program is diverse and will interest both the Orthopaedic and the Plastic surgeons. We are privileged to have a prominent guest speaker, Prof Michael Tonkin. The venue for the congress dinner is the legend of the Phantom Ship at the nationally acclaimed uShaka Marine World. As usual the trade sponsor and participation has been generous. I would like to extend my gratitude to both the trade and you the delegates for supporting the Society in this event.

Your congress is guaranteed to be a memorable one. Enjoy every moment of it.

MAHENDRA DAYA

INTERNATIONAL VISITOR

Professor Michael A Tonkin
Department of Hand Surgery & Peripheral Nerve Surgery
Royal North Shore Hospital
St Leonards NSW 2065
Australia

His major research and clinical interests include congenital hand surgery, brachial plexus injuries, improving upper limb function in cerebral palsy, tendon repair, Dupuytren's disease and correction of rheumatoid hand deformities. He has more than 105 publications and his prominent standing amongst his peers is evident in his involvement in national and international committees for hand surgery education and specialist training.

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SPONSORS

Medical Research Council	Financial contribution towards traveling expenses of Prof M Tonkin
Stratmed cc	Registration, including bags, stationery, name tags
Synthes (Pty) Ltd	Audiovisual
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The SASSH wishes to thank all trade delegates for their participation and their generous sponsorship

GENERAL ANNOUNCEMENTS/CONGRESS INFORMATION

CPD REGISTER
A daily register will be available at the registration desk

Certificates will be posted to delegates

DRESS CODE
Casual attire for congress sessions and smart casual for the social function

IMPORTANT
- **Name tags** should be worn at all times. Only delegates wearing name tags will be permitted to enter the lecture hall, exhibition area and the social function

- The use of **cell phones** in the lecture hall is not allowed

INFORMATION FOR SPEAKERS
Keeping to your allocated time is a courtesy to all following speakers. The chairs of the sessions have been instructed to exert tight control and interrupt lengthy presentations. Please make sure you are aware of the time allotted to you for your presentation

Please hand your presentation to the audiovisual technicians at least 3 hours prior to the session in which the presentation is being given. They will be available in the congress venue to receive your material

INFORMATION/REGISTRATION DESK
The Information/Registration Desk will be situated in the Foyer of the Conference Area
Please feel free to visit the Desk should you require any assistance

LANGUAGE
The official language of the congress will be English. No simultaneous translation service will be provided

SMOKING
In accordance with Government Legislation regarding smoking in public areas, kindly note that this venue is a non-smoking area

TRADE EXHIBITORS
Kindly make every effort to visit all the stands.
Teas and lunches will be served in the trade exhibition area

2006 CONGRESS ORGANIZING COMMITTEE

Congress Chairman	Mahendra Daya
Additional Member	Martin Wells
Congress Coordinator	Hendrika van der Merwe

SOCIAL EVENT

Congress Dinner	Monday 4 September 2006 Cargo Hold Restaurant Phantom Ship uShaka Marine World Dress: Smart Casual Buses depart at 19:00 from the Main Entrance of the Elangeni Hotel

FUTURE EVENTS

ANNUAL REFRESHER COURSES

2007	Topic	Arthritis
	Date	15-18 February
	Venue	Kievits Kroon Country Estate, Pretoria
2008	Topic	Wrist and Distal Radio-ulnar Joint, Biomechanics, Distal Radius
	Date	TBA
	Venue	Johannesburg
2009	Topic	Congenital Deformities, Anatomy, Microsurgery, Biomechanics
	Date	TBA
	Venue	Durban
2010	Topic	Nerve, Pain, BPI, Sudeck's, Tendon Transfers
	Date	TBA
	Venue	Cape Town

ANNUAL CONGRESSES

2007	38th Congress and Instructional Course	
	Date	1-2 September
	Venue	Johannesburg
2008	39th Congress and Instructional Course	
	Date	30-31 August
	Venue	Cape Town
2009	40th Congress and Instructional Course	
	Date	5-6 September
	Venue	Bloemfontein
2010	41st Congress and Instructional Course	
	Date	4-5 September
	Venue	Pretoria

PAST PRESIDENTS / VORIGE PRESIDENTE

1969-1971	I Kaplan
1971-1973	AC Boonzaier
1973-1975	M Singer
1975-1977	JH Youngleson
1977-1979	TL Sarkin
1979-1981	CE Bloch
1981-1983	SL Biddulph
1983-1985	WMM Morris
1985-1987	LK Pretorius
1987-1989	KS Naidoo
1989-1991	SL Biddulph
1991-April 1992	BJ van R Zeeman
April 1992 – 1993	SL Biddulph
1993-1995	JH Fleming
1995-1997	U Mennen
1997-1999	EJ Bowen-Jones
1999-2001	LT de Jager
2001-2003	JJ van Wingerden
2003-2005	M Carides

OFFICE BEARERS / AMPSDRAERS

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Immediate Past President/ Pas Uitgetrede President	M Carides
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AC BOONZAIER MEMORIAL LECTURES

1997	PROF ULRICH MENNEN "The Appreciation of the Hand"
1998	DR JOHN YOUNGLESON "Reminiscing the Past"
1999	DR EDWARD BOWEN-JONES "Bamba Isandla Qualities of a Leader in Hand Surgery"
2000	PROF KS NAIDOO "Overview of Hand Surgery"
2001	DR LT (WIKUS) DE JAGER "The Future of Hand Surgery in South Africa"
2002	PROF SYD BIDDULPH "The Hand – A Mirror of Disease"
2003	DR JAN VAN WINGERDEN "The Joy of Medical Discovery"
2004	DR INGRAM ANDERSON "The Hand – Cogitations of a Rheumatologist"
2005	DR MICHAEL CARIDES "But, on the other hand....."

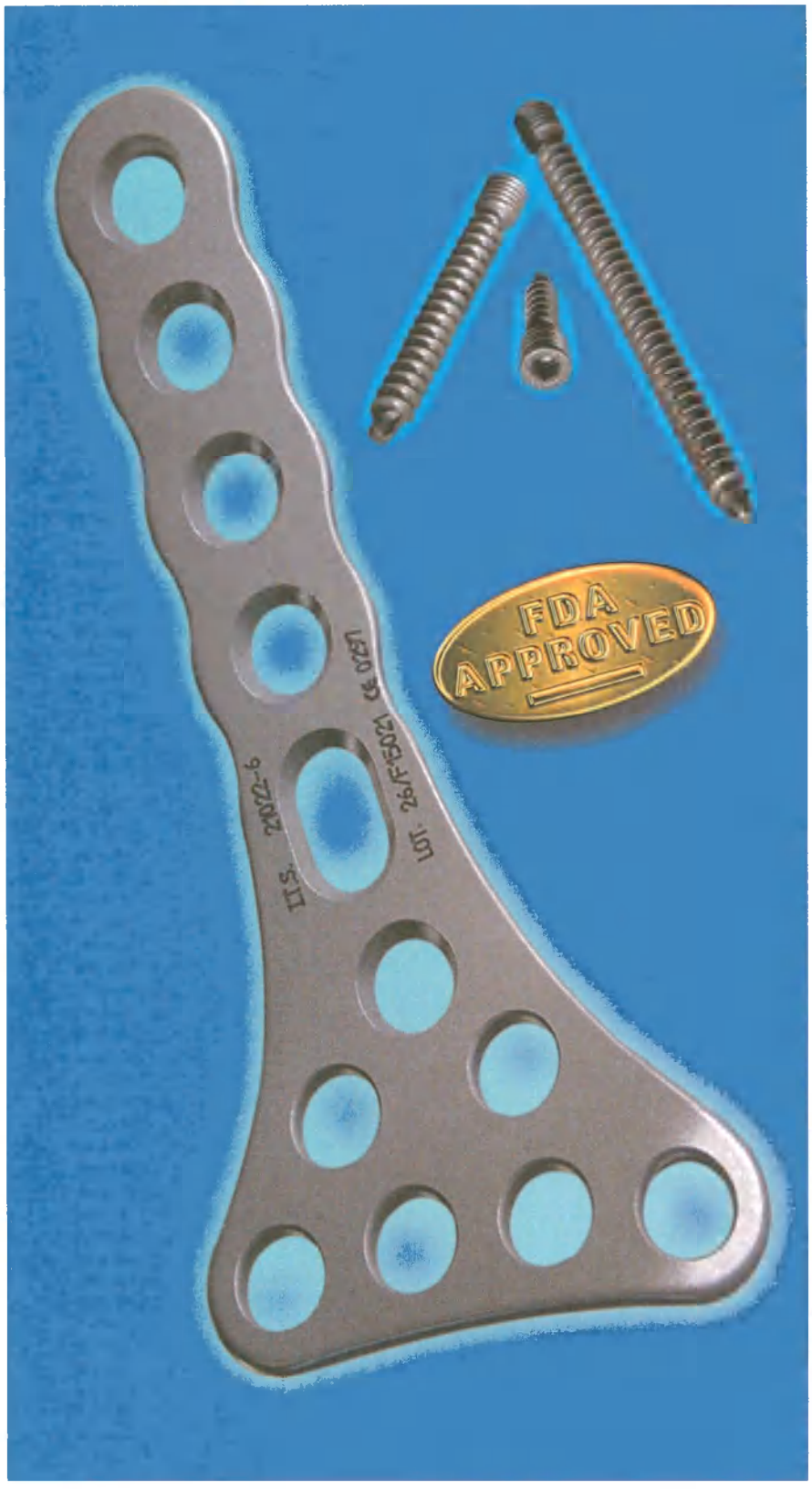
ANNUAL GENERAL MEETING

Monday 4 September 2006
16:30 – 17:30
(Members only / Slegs Lede)
Congress Venue, Elangeni Hotel, Durban

1
Welcome Address by the President
Verwelkoming deur die President
2
Apologies and Proxies
Verskonings en Volmagte
3
Minutes of the Previous Annual General Meeting
Notule van die Vorige Algemene Jaarvergadering
4
Matters Arising from the Minutes
Sake wat uit die Notule Voortspruit
5
President's Report
President se Verslag
6
Honorary Secretary/Treasurer's Report
Ere-Sekretaris/Tesourier se Verslag
7
Proposed Increase in Entrance Fee and Annual Subscription
Voorgestelde Verhoging in Intreefooi en Jaargeld
8
Announcement of President-Elect
Aankondiging van Aangewese President
9
Membership
Lidmaatskap
10
General
Algemeen
11
Next Annual General Meeting
Volgende Algemene Jaarvergadering

I.T.S. DISTAL VOLAR RADIUS PLATE

WITH ANGULAR STABILITY



TITANIUM ALLOY
LOCKING SCREWS

CUTS ITS OWN
THREAD INTO
THE PLATE

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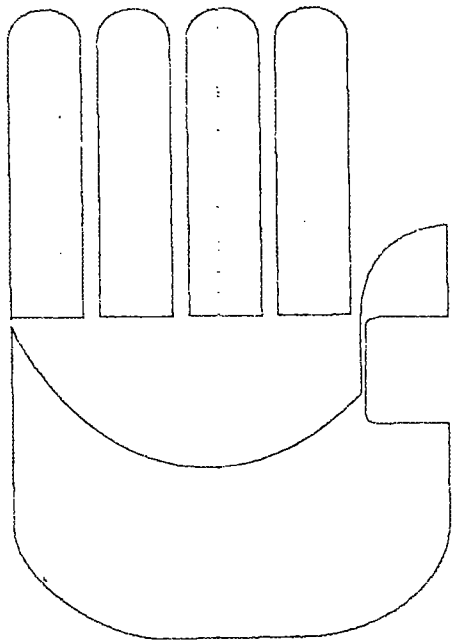
MONDAY 4 SEPTEMBER 2006

SCIENTIFIC PROGRAM
AND
ABSTRACTS



THE SOUTH AFRICAN SOCIETY FOR SURGERY OF THE HAND
CONGRESS 2006

MONDAY 4 SEPTEMBER

07:00-07:45	Registration: Foyer - Elangeni Hotel	
07:45-07:50	Welcome and Announcements	*Prof T Le Roux*
SESSION 1	**CHAIRMAN: PROFESSOR THEO LE ROUX**	
07:50-08:20	Applied Anatomy of the Hand	*Prof M Tonkin*
08:20-08:30	Discussion	
08:30-08:40	The Distribution and Ultra-Structure of Neuromuscular Junctions in Extrinsic and Intrinsic Muscles of the Baboon	*Dr C Baker, Prof U Mennen*
08:40-08:45	Discussion	
08:45-08:55	Inaccuracies in Nerve Surgery Reporting	*Dr M Solomons*
08:55-09:00	Discussion	
09:00-09:10	Grip Strength Measurement: WHY?	*Ms L Pringle*
09:10-09:15	Discussion	
09:15-09:25	Negative Pressure Wound Therapy – An Oxymoron?	*Dr N Kairinos, Dr M Solomons, Prof DA Hudson*
09:25-09:30	Discussion	
09:30-09:40	Multicenter Retrospective Study to Compare Functional Outcome of Fixed Angle Volar Locking Plates (Hand Innovation and Acumed) and Closed Reduction and K-wire Fixation in the Treatment of Distal Radial Fractures	*Dr M Durrans, Dr S Pretorius, Dr M Wells, Dr A Ikram*
09:40-09:45	Discussion	
09:45-09:55	Treatment of Lunate and Perilunate Dislocations with Combined Volar and Dorsal Approach and Anchor Repair of the Dorsal Interosseous Ligament	*Dr G B Firth, Dr A Aden*
09:55-10.00	Discussion	
10:00-10:30	**TEA**	
SESSION 2	**CHAIRMAN: DR MAHENDRA DAYA**	
10:30-11:10	Congenital Anomalies of the Hand: Genetics, Classification & Management	*Prof M Tonkin*
11:10-11:20	An Alternative Treatment for Rudimentary Ulnar Polydactyly	*Dr M Marez, Dr S Carter*
11:20-11:40	Syndactyly	*Prof M Tonkin*
11:40-11:55	Discussion	
11:55-12:05	A New "Cosmetic" Incision for Carpal Tunnel	*Dr E Bowen-Jones*
12:05-12:20	How to Avoid Complications in Endoscopic Carpal Tunnel Release: A Personal Review of 3500 Operations in Agee Technique	*Dr A Neumann*
12:20-12:30	Discussion	
12:30-13:30	**LUNCH**	
SESSION 3	**CHAIRMAN: PROFESSOR ULRICH MENNEN**	
13:30-14:10	Flexor Tendon Repair – Current Concepts	*Prof M Tonkin*
14:10-14:20	Discussion	
14:20-14:30	Kleinert Neurovascular Island Flap	*Dr G van Osch ,Dr S Carter, Dr M Solomons*
14:30-14:35	Discussion	
14:35-14:45	Phantom Limb Pain in Brachial Plexus Injury: A Case Study	*Ms N Singh*
14:45-14:50	Discussion	
14:50-15:00	Shoulder Arthrodesis combined with Elbow Tendon Transfer	*Dr JP Abner, Dr A Ikram*

15:00-15:05	Discussion	
15:05-15:15	Anatomic Correlation of Ulnar Nerve Branching Pattern to Intrinsic Muscular Recovery Following Repair *Dr G Doucas, Prof A Widgerow, Dr V Yip, Dr G Candy, Dr E Marcos*	
15:15-15:20	Discussion	
15:20-15:40	**TEA**	
SESSION 4	**CHAIRMAN: DR MICHAEL SOLOMONS**	
15:40-16:20	Brachial Plexus Injuries: Current Concepts	*Prof M Tonkin*
16:20-16:30	Discussion	
16:30-17:30	**ANNUAL GENERAL MEETING (Members only)**	
19:00 till late	Buses depart to uShaka Marine World for an unforgettable submarine dinner Dress: Smart casual	

ABSTRACTS

SESSION 1

Applied Anatomy of the Hand

Prof MA Tonkin

The Distribution and Ultra-Structure of Neuromuscular Junctions in Extrinsic and Intrinsic Muscles of the Baboon

Dr C Baker, Prof U Mennen

The aim of this study was firstly, to investigate the distribution of the neuromuscular junction bands in the extrinsic flexor carpi ulnaris of the forearm as well as the intrinsic muscles of the thenar and hypothenar eminences in the baboon *Papio ursinus*. Secondly, to determine whether there are any morphological or ultrastructural differences that could be observed at the neuromuscular junction (NMJ).

Muscles were retrieved from six male baboons and incubated for cholinesterase activity to identify regions of neuromuscular junction distribution. Tissue from the stained regions was subsequently prepared for investigation by means of electron microscopy.

Distribution of the NMJ bands in the flexor carpi ulnaris, as well as the hypothenar and thenar muscles varied greatly, but confirmed a very close relationship between the number of NMJ bands and the functional arrangement of the muscle fibers in the different muscles.

The greatest variation that was found during the investigation was in the size of the NMJ which may also be due to allometry. Small NMJs were found in the intrinsic muscles and their sizes were in the range for skeletal muscle in humans.
Elaborate SR-like tubular expansions was observed laterally in the myofibers of the intrinsic muscles of the baboon which have not previously been observed or examined.

In conclusion, it is evident that the NMJ is not influenced by the specific nerve that innervates it (either the median or ulnar nerve); but rather that the muscle is greatly influenced by internal ultrastructural or molecular factors in order to regulate function.

Inaccuracies in Nerve Surgery Reporting

Dr M Solomons

The human body has an incredible ability to adapt to maintain function. A series of cases will be discussed to highlight the difficulty in motor assessment and tips will be offered to help with accurate reporting.

Grip Strength Measurement: WHY?

Ms Lynne Pringle

Aim
Ascertaining how the results of grip strength testing, is implemented in rehabilitation, and ultimate function. Do therapists interpret readings correctly?
Is grip strength testing utilised in order to assess the extent and detail of limitation and functional deficit, and then to set, evaluate and modify goals in treatment? When using results for research purposes, statements are often made such as: "good grip strength and therefore good functional outcome".

Different methods, techniques and instruments in measuring grip strength are researched.
Norms, reliability and validity is discussed.

A large volume of everyday, functional activities using grip strength is documented. These include samples from factory workers, clerical, technical, medical, administrative, manual labour, domestic workers, and selfcare and leisure activities.

Conclusion
Norms are merely a guideline. Any calibrated dynamometer is as good as another. A bell curve is mandatory. Each of the 5 settings indicates information regarding function and/or limitation. Using only setting 2, or the mean, or the highest setting result, is of no functional value, and does not indicate functional outcome.
When correctly applied and interpreted, grip strength testing is a valuable tool in assessment prior to, and during rehabilitation, and as a measurement for functional outcome.

Negative Pressure Wound Therapy – An Oxymoron?

Dr N Kairinos, Dr M Solomons, Prof DA Hudson

Aims
To evaluate whether the intra-corporeal pressure of circumferential vacuum dressings on limbs is positive, negative or equal to atmospheric pressure and to determine which factors influence this pressure.

Method
Various sizes of intravenous fluid bags (vacolitres) were used as models to determine intracorporeal pressure. Vacuum dressings of different configurations were applied to the bags and the pressure inside these bags was measured. The pressure between the foam and the "wound" interface was also measured.

Results
All the vacuum dressings, except the non-circumferential one, increased the pressure within the vacolitres. The application of a larger volume of foam or increases in suction force increased the pressure within the bags. In the non-circumferential dressing there was no recordable change in pressure within the vacolitre, however, the pressure beneath the foam dressing increased. This too was influenced by foam volume and suction force.

Conclusion
This study proved that intracorporeal pressure increases with all types of circumferential vacuum dressings. Vacuum dressings are applied by both doctors and nursing staff alike and should they not be aware of the concept of a negative pressure dressing applying a positive tissue pressure, the viability of ischaemic tissues, digits or even limbs could be catastrophically compromised.

Multicenter Retrospective Study to Compare Functional Outcome of Fixed Angle Volar Locking Plates (Hand Innovation and Acumed) and Closed Reduction and K-Wire Fixation in the Treatment of Distal Radial Fractures

Dr M Durrans, Dr S Pretorius, Dr M Wells, Dr A Ikram

Aim of Study
Anecdotal evidence states that locking plates should be superior to k-wire fixation. The results of the study will be used to scientifically test this anecdotal evidence.

Method
The study is a multicenter study involving Tygerberg Hospital and two private surgeons.
The aim of the study is to evaluate the functional outcome of patients with distal radius fractures treated with a) fixed angle volar locking plates (Hand Innovation and Acumed)

and b) closed reduction and K-wire fixation. The DASH score; grip and pinch strength and range of motion were used to evaluate each patient.
All patients were followed-up for at least 4 months.

Results
As this study is still underway the results are pending.

Conclusion

Treatment of Lunate and Perilunate Dislocations with Combined Volar and Dorsal Approach and Anchor Repair of the Dorsal Interosseus Ligament

Dr G B Firth and Dr A Aden

Purpose
To determine the clinical and radiological outcome of patients with lunate and perilunate dislocations treated with a combined volar and dorsal approach and anchor repair of the dorsal interosseus ligament.

Methods
A combined volar and dorsal approach with anchor repair of the dorsal interosseus ligament was used to treat 7 patients with isolated lunate or perilunate dislocations. The mean interval between injury and surgery was 3.5 days. Outcome was assessed after an average of 25 months. Patients were assessed subjectively and objectively using the (DASH score) "Disabilities of the arm, shoulder and hand score" and the "Mayo Wrist Score". Outcome was also assessed radiologically using the scapholunate angle and the scapholunate gap post operatively and at final follow up.

Results
Five of the six patients returned to their original work. All patients ranked good or excellent in the "Mayo Wrist Score". In the "DASH" score four of the patients scored excellent. The wrist range of motion at final follow up averaged 45º flexion, 43.75º extension, 8.75º radial deviation, 37.5º ulna deviation and 90º/90º pronation/supination Grip strength at final follow up 38.475 kg with 81.95% of the contralateral grip strength.. One patient required wrist fusion at fourteen weeks due to severe unremitting pain.

Conclusions
In our group of patients, reduction was maintained in all patients radiologically but this did not relate to an equally good function in terms of pain relief, functional motion and grip strength. Low energy injuries were more likely to obtain full function.

SESSION 2

Congenital Anomalies of the Hand: Genetics, Classification and Management

Prof MA Tonkin

Control of growth and patterning of the limb bud lies within three signal centres: the apical ectodermal ridge, the zone of polarising activity and the dorsal ectoderm.

The first of these controls the proximal-distal axis in which the morphogen, Fibroblastic Growth Factor plays a major role. The zone of polarising activity controls the anterior-posterior (radio-ulnar) axis, the vital morphogen being Sonic Hedgehog. Interaction between the dorsal and ventral ectoderm controls the volar-dorsal axis. The main morphogens are Wnt 7a, En 1 and Lmx 1b. There is a complex interaction between these three signal zones and the morphogens expressed within them.

It is possible to develop cascade pathways of limb development but these pathways are probably multiple and interactions between them are not well-understood.

Congenital limb anomalies are caused as a consequence of genetic mutation or because of interruption within pathways at a molecular level or as a gross insult. A number of hereditary syndromes, such as Holt Oram, Brachydactyly type C and central longitudinal deficiency (cleft hand complex) have been identified. Others, such as symbrachydactyly, may be a consequence of a vascular insult or an environmental effect such as radiation, infection, medication, nutrition.

The current classification of congenital upper limb anomalies is based on the IFSSH modification of Swanson's table. Regrettably, as our understanding of causation of limb anomalies improves, this classification becomes less logical. A surgical classification may simply be directed towards whether the part is over-developed, under-developed, deformed, unstable and/or stiff, with surgical procedures being directed towards reduction of tissue, addition of tissue, correction of deformity, stabilisation and creation of motion. In the main, surgery is directed towards improvement in function but also towards improvement of appearance. Different anomalies demand different timing of surgery and the surgeon must be aware that growth may alter what appeared to be a good early result.

An Alternative Treatment for Rudimentary Ulnar Polydactyly

Dr M Maree, Dr S Carter

Introduction
Rudimentary ulna polydactyly is one of the most common hand anomalies. These are conventionally treated in the post-natal period by suture ligation, or formally excised under general anaesthesia at one year of age. We propose an alternative method, using liger clip ligation as an outpatient procedure, and compare the cost and results to that of conventional treatment.

Methods
We reviewed 33 patients over an eight-month period. Their average age was five months. There were 19 males and 14 females. There were 49 digits, of which 16 were bilateral. The liger clip was applied to the base of the digit, under local anaesthesia, as an outpatient procedure.

Results
At one-week follow-up, the stump had necrosed leaving no residual nubbin. No clips had fallen off prematurely. At three-month follow-up, no complications were noted.

On comparison to surgical excision, there was an eight-fold difference in total cost, including theatre time, staff and patient costs.

Conclusion
Liger clip ligation of extra digits is a better alternative to conventional treatment. It is more cost–effective, potential complications of anaesthesia and surgery are avoided, as well as knot slippage, residual nubbin, venous engorgement and sepsis of the stump, complications common with suture ligation.

Syndactyly

Prof MA Tonkin

Syndactyly is one of the two most common congenital upper limb anomalies. It is classified as simple or complex if there is bone involvement, incomplete or complete and complicated when multiple joint, bone, tendon and neurovascular anomalies exist.

Surgical reconstruction is an exercise in skin management. There is a shortness of skin which may be addressed by elevation of appropriate skin flaps, defatting, loose skin closure and the use of skin grafts. The surgeon must attend to the central web reconstruction, digital flaps and nail fold reconstruction. Although many methods of web reconstruction have been described, all tend to use either a dorsal rectangular or palmar rectangular flap or interdigitating triangular flaps. More recently a transposition rotation flap has been described. All are aimed to achieve appropriate inclination, contour and depth of the web.

The interdigitating digital flaps may be of acutely-angled pattern with a possible complication of tip necrosis or of obtuse-angled pattern, in which case straight line contractures may develop with growth. The nail fold reconstruction is adequately achieved in most cases with Buck-Gramcko flaps but some have advocated preliminary thenar flaps or free toe pulp flaps.

When the syndactyly is incomplete and lies proximal to the proximal interphalangeal joint, local flap transpositions are possible.

The most feared complication of syndactyly surgery is the development of post-operative keloid. This is significantly more likely if the syndactyly is associated with digital overgrowth. The surgeon should be aware of this complication and consider prophylactic therapy such as methotrexate, in combination with standard physical measures, in an attempt to avoid or suppress it.

A New "Cosmetic" Incision for Carpal Tunnel

Dr E Bowen Jones

The Carpal Tunnel Syndrome is a frequently occurring condition, especially in women. Although most patients are satisfied with results of surgery, there are two problems encountered in the author's practice.
Firstly, persistent symptoms caused by inadequate release of the carpal retinaculum, and secondly, problems with the scar at the wrist. A Longitudinal scar provides excellent access to the operation field but the scar contracts leaving a small web across the wrist joint and in some cases a painful and ugly hypertrophic scar. A nice neat transverse incision in the wrist crease heals well but may not provide adequate access to the carpal tunnel. For these reasons, endoscopic release of the tunnel has become popular. However, it requires special skill, takes longer, will be more costly and equipment is not universally available.

The author's incision combines two skin crease incisions down the palm and across the wrist crease meeting at an acute angle proximally to the thenar eminence. The skin flap is raised and held back by suture giving excellent exposure to the carpal tunnel. Closure is with a subcuticular suture giving an imperceptible scar.

This incision can be used under local anaesthetic and has been used many times over the last four years. It has the minimal scar benefits of endoscopic surgery but is quicker, cheaper and requires less skill and equipment.

How to Avoid Complications in Endoscopic Carpal Tunnel Release – A Personal Review of 3500 Operations in Agee Technique

Dr Axel Neumann

Carpal tunnel syndrome is the most common nerve compression syndrome in Germany .The operation frequency is about 200000 cases a year, about 25-30% of the procedures are performed endoscmotically at present. Although we can assume, that surgeons world wide are e.g. well trained in carpal tunnel surgery because of its frequency, there is still a known rate of 1- 4 % general complications and of 0.3 – 0.8 % severe nerve complications after open (OCTR) and endoscopic (ECTR) operations . The extensive met analysis by Schenk 1997 and Boeckstyns 1999 pointed out, that there is no difference between the OCTR and ECTR groups in the studies referring complication rates. Nevertheless there are studies, which report three or more percent severe problems following endoscopic procedures especially – often outcome studies after a short period of authors experience with a number of cases of only 100 and less. We therefore wish to present a practical contribution, basing on a 13 years experience, how one can perform the Agee ECTR technique definitely safe and in a minimal invasive way, which satisfies the patients very much.

Since 1992 3500 patients were treated by the first author using the Agee one portal technique. Operations were done e.g. in a daily care unit using tourniquet in regional, general or local anaesthesia. All patients underwent an ENG study pre- and postoperatively, but there was no selection of cases referring the severity of the nerve compression syndrome. 115 bilateral operations were done. There is a regular follow up of min. 90 % of all cases 1,7,14,30 and 60 days postoperative due to insurance conditions and to an own quality assessment system of the department. General and personal exclusion criteria for ECTR are presented such as patients attributes, systemic

diseases and biomechanical reasons. The great importance of a proper handling of the technical devices is demonstrated. The decisive details of the Agee one portal procedure are presented in a series of special cases and videos and illustrated by cadaver sections. The practice of the estimation and the treatment of possible complications in the early postoperative. period is discussed.

SESSION 3

Flexor Tendon Repair – Current Concepts

Prof MA Tonkin

Optimal primary flexor tendon repair demands both an adequate strength of repair to avoid gapping and rupture and a repair which achieves smooth gliding function with minimal adhesions and minimal friction.

The strength of repair is proportional to the number of core sutures, the use of locking techniques, the addition of an epitendinous suture and the optimal selection of a suture material and knot technique. Gliding resistance is increased by the bulk of the repair, the amount of external suture material and adhesion formation, which is increased when there is gap formation, irregularity at the tendon junction, excessive tendon handling, increased bulk of tendon repair and excessive external suture material.

In principle, a braided suture is stronger than a monofilament and a 3/0 suture is stronger than a 4/0 suture. When loading to failure, Ticron and Maxon approximate the strength of stainless steel and are superior to Surgilene or nylon.

The epitendinous suture improves the strength of repair and improves gap resistance. It may carry up to 77% of the tensile load and is more effective if of the Silfverskiold type rather than of the simple running type.

Biomechanical studies comparing two- and four-strand techniques have not been able to demonstrate that the increased handling involved in the placement of a greater number in strands increases the adhesion formation.

Based on current knowledge, I present my current method of flexor tendon repair and rehabilitation.

Kleinert Neurovascular Island Finger Tip Flap

Dr G van Osch/Dr S Carter/ Dr M Solomons

Aim
Analysis of the outcome of neurovascular island flap developed to reconstruct volar-oblique fingertip amputations.
A comparison of results with the initial study.

Methods
Patients were contacted telephonically and recalled for review.
A subjective questionnaire was filled in and objective clinical measurements taken.
The parameters of the original study were reproduced in order to compare results.

Results
We have 14 cases since 2004.
8 Cases were lost to follow up with only clinic notes available.
6 Cases were reviewed and showed good results with regard to function, cosmesis and patient satisfaction.

Conclusion
It was concluded that this was a safe and reliable method of reconstruction, with a number of advantages over previous methods.

Phantom Limb Pain in Brachial Plexus Injury: A Case Study

Ms N Singh

Introduction
Phantom pain is extremely debilitating and often results in the patient being constantly tense, aggressive and withdrawn. This presentation outlines the therapist's experience in dealing with phantom limb pain in a patient who sustained a brachial plexus injury, with involvement of C6-T1 nerve trunks.

Method
The treatment approach used was broadly based on Dr Ramachandran's* theories around neuroplasticity, as well as treatment protocols being used by Andrew Austin from the Neurolinguistic Programming Centre in the UK. This included the use of neurological programming, whereby phantom pain was reduced and eliminated by using treatment techniques such as: (a) visual feedback through a mirror box; and (b) facial mapping and stimulation through massage and vibration.

Conclusion
Initially, the techniques used produced tightening and heightened pain in the phantom hand. With repetition, however, the therapist was able to physically access the phantom limb and bring about relaxation and diminishment of phantom sensations. Findings did however tend to be inconsistent with further research into this area being advocated

*Dr V S Ramachandran is a Neurologist and Director of the Centre for Brain and Cognition at the University of California, San Diego

Shoulder Arthrodesis Combined with Elbow Tendon Transfer

Dr JP Abner, Dr A Ikram

Aim
To evaluate the technique employed by Tygerberg Hand unit: Use of a fascia lata graft for flexorplasty of the elbow using a pectoralis major tendon transfer simultaneously with shoulder arthrodesis for brachial plexus lesions.

Methods
We conducted a retrospective study of five patients that underwent this procedure between 2000 and 2005. Only one patient could not be contacted for follow-up. The mean follow-up time was 18 months. Subjective and objective measurements were done to evaluate elbow flexion.

A shoulder arthrodesis was performed, using an AO plate and compression screw technique on all five patients. All of the patients presented after nine months or more with C5/C6 brachial plexus lesions and did not undergo an exploration and attempted repair.

Results
We have found that both subjective and objective power of elbow flexion was good with little or no lag effect.

Conclusion
Elbow flexorplasty utilizig a fascia lata graft for pectoralis major transfer combined with a shoulder arthrodesis in patients with C5/C6 brachial plexus lesions has a good outcome and can be recommended (as an alternative to using biceps or a Steindler flexorplasty).

Anatomic Correlation of Ulnar Nerve Branching Pattern to Intrinsic Muscular Recovery Following Repair

Dr G Doucas, Prof A Widgerow, Dr V Yip, Dr G Candy, Dr E Marcos

Aims of study

The ulnar nerve is able to withstand a longitudinal weight of 165kg prior to rupture, but, despite this impressive resistance to strain, peripheral nerves are no match to the destructive potential of a sharp object.

Transection and repair of a peripheral nerve has considerable consequences for the individual, due to sensory and motor loss, as well as pain and discomfort from hyperaesthesia and cold intolerance. The deep branch of ulnar nerve (ramus profundus) innervates the three **hypothenar muscles**, all the **interossei**, **3rd & 4th lumbricals**, **adductor pollicis** and **deep head of flexor pollicis brevis**.

Work has been done on the deep branch of the ulnar nerve and a branching sequence relating to individual muscle distribution has been defined. Using the above anatomical knowledge of the deep branch of the ulnar nerve and applying ulnar nerve innervated intrinsic muscle testing; we aim to produce a predictive pattern of recovery in repaired distal ulnar nerve laceration injuries and correlate these with the anatomic descriptions of ulnar nerve arborisation.

Methods

Fifteen patients will be asked to return for a once off non-invasive assessment of all

The assessment will be done in conjunction with the Hand Unit of the Occupational intrinsic muscles innervated by ramus profundus of the ulnar nerve.

The patients selected are those that sustained laceration injuries in Flexor Zone V, with 100% transactions of the distal ulnar nerve, during the period spanning from 2001- 2004, and repaired in our Plastic & Reconstructive Unit within 24-48hrs following injury ("fresh injuries"). Therapy Department of Johannesburg General Hospital.

Results

To follow

Conclusions

To follow

SESSION 4

Brachial Plexus Injuries – Current Concepts

Prof MA Tonkin

Morbidity following brachial plexus injury will depend upon the extent of damage within the plexus(C5, C6; C5,6,7; pan plexus); the level at which the damage occurs (root avulsion, trunk, cord); the degree of damage (neuropraxia, axonotmesis, neurotmesis); and the degree of fibrosis which occurs in intact nerves following the injury (epifascicular fibrosis, interfascicular fibrosis, intrafascicular fibrosis).

Early referral allows early assessment such that optimal neurosurgical and orthopaedic procedures can be planned, pain may be optimally managed and rehabilitation programmes instituted.

Surgical management may be divided into early: within 6 months; intermediate: 6-12 months; and late: after 12 months. In the first 6 months, neurosurgical reconstruction, following failure to improve, involves a combination of nerve grafting and nerve transfers and, perhaps, neurotisation. The advantage of a nerve transfer is the ability to transfer a live nerve close to the neuromuscular junction of a denervated muscle. Common nerve transfers utilise the accessory, phrenic, intercostal and ulnar nerves but many more are possible. Nerve transfers to the musculocutaneous nerve achieve approximately 75% M3 and M4 power of elbow flexion. These results are compared with those of nerve grafting and possible neurosurgical reconstructions are considered for example cases of injuries of different level and different extent.

There has been an increasing utilisation of free muscle transfers, not only for late surgery following late presentation or failed primary surgery, but also for cases of early presentation as championed by Doi of Japan.

The results of this surgery in the literature and those of the author are described, as are various orthopaedic options to supplement the neurosurgical reconstructions.

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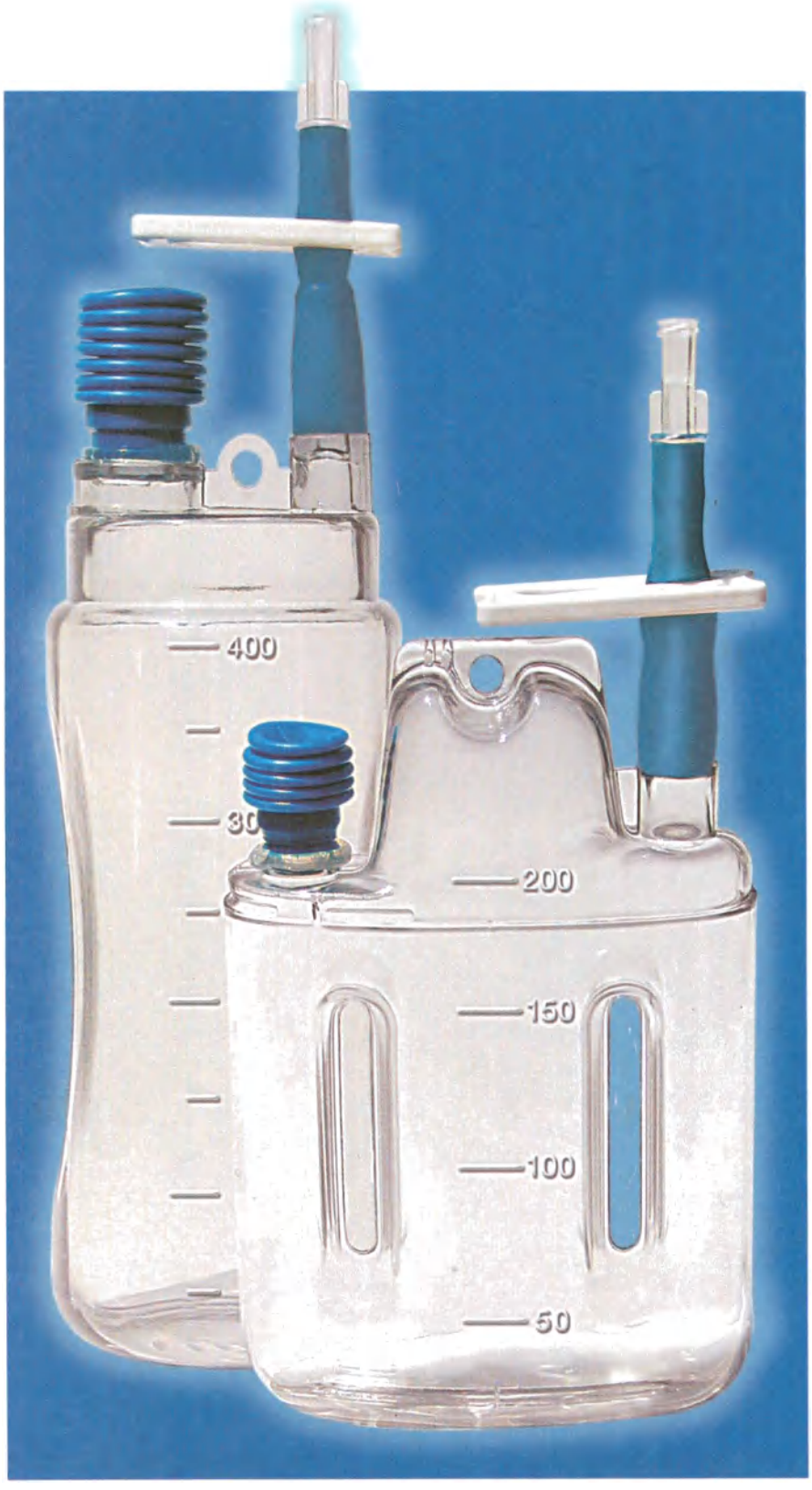

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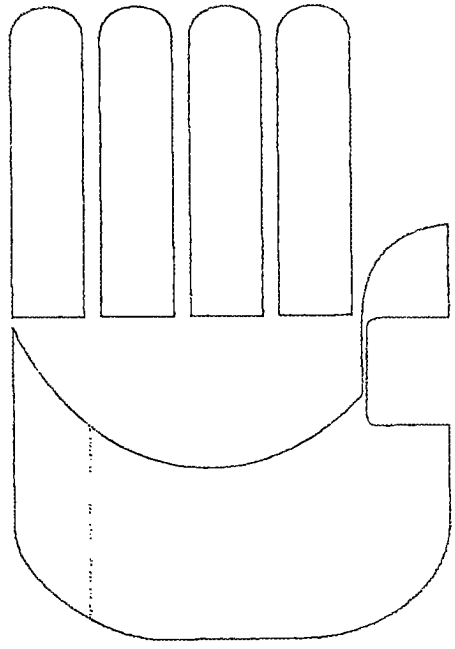
TUESDAY 5 SEPTEMBER 2006

SCIENTIFIC PROGRAM AND ABSTRACTS



THE SOUTH AFRICAN SOCIETY FOR SURGERY OF THE HAND CONGRESS 2006

TUESDAY 5 SEPTEMBER 2006

07:30-08:00	Registration	
SESSION 5	**CHAIRMAN: DR EDWARD BOWEN-JONES**	
08:00-08:40	Finger Deformity in Rheumatoid Arthritis	*Prof M Tonkin*
08:40-08:50	Discussion	
08:50-09:00	Complex Hand Contractures: Seeking a Solution!	*Dr M Daya*
09:00-09:05	Discussion	
09:05-09:25	Thumb Hypoplasia	*Prof M Tonkin*
09:25-09:35	Discussion	
09:35-09:45	Osseo-Integrated Finger Prosthesis (and a young boy's earring)	*Dr M Solomons, Mr S Kritzinger*
09:45-09:50	Discussion	
09:50-10:00	7 Flap Plasty in Burn Contractures of the Upper Limb	*Dr M Daya*
10:00-10:05	Discussion	
10:05-10:15	Hook-Nail Deformity	*Prof M Tonkin*
10:15-10:20	Discussion	
10:20:10:40	**TEA**	
SESSION 6	**CHAIRMAN: DR MARTIN WELLS**	
10:40-11:00	Obscure Wrist Pain	*Prof M Tonkin*
11:00-11:10	Discussion	
11:10-11:20	The Dorso-Distal Scaphoid Approach	*Prof U Mennen*
11:20-11:25	Discussion	
11:25-11:35	A Novel Surgical Technique for the Management of Grade 3B Kienbock's Disease	*Dr SL Carter*
11:35-11:40	Discussion	
11:40-12:20	**AC Boonzaier Lecture** On Surgeons, Heads, Hearts and Hands – A Philosophy	*Prof M Tonkin*
12:20-13:20	**LUNCH**	
SESSION 7	**CHAIRMAN: DR MICHAEL CARIDES**	
13:20-14:00	Obstetric Brachial Plexus Palsy	*Prof M Tonkin*
14:00-14:10	Discussion	
14:10-14:20	The Oberlin and Modified Oberlin Nerve Transfer	*Dr M Solomons, Dr R Nicholson*
14.20-14:25	Discussion	
14:25-14:35	Biomechanics of Tendon Tranfers in Ulnar Palsy	*Dr JW Brandsma, Dr RJ Schwarz*
14:35-14:40	Discussion	
14:40-15:20	The Upper Limb in Cerebral Palsy	*Prof M Tonkin*
15:20-15:30	Discussion	
15:30-15:40	Closure by President	*Prof Theo le Roux*
15:40-16:10	**TEA**	

ABSTRACTS

SESSION 5

Finger Deformity in Rheumatoid Arthritis

Prof MA Tonkin

At the metacarpo-phalangeal joint the classic deformity is one of ulnar deviation, palmar subluxation and pronation of the proximal phalanx in relationship to the metacarpal head. Physiological forces combine with pathological forces to both pull and push the fingers into the ulnar deviated position. This tendency is accentuated by a radial deviation deformity of the wrist and flexion of the carpometacarpal joints on the ulnar side of the hand.

The Boutonniere deformity is due to disease at the proximal interphalangeal joint, with attenuation of the central slip and palmar subluxation of the lateral bands. The swan neck deformity may occur secondary to metacarpo-phalangeal joint and distal interphalangeal joint disease as well as proximal interphalangeal joint disease. There is a loss of balance at the proximal interphalangeal joint with extensor overactivity, intrinsic, extrinsic or both, and is often due to flexor synovitis.

Management of deformity of the wrist and fingers in rheumatoid arthritis should be directed towards overcoming the deforming forces and stabilising joints upon which they act. Without this consideration, surgery is doomed to failure.

At the metacarpo-phalangeal joint soft tissue reconstruction is possible when joint integrity is maintained, in younger patients and if the deformity is not too extreme. Joint replacements remain the mainstay of surgical reconstruction. In both approaches, soft tissue rebalancing is vital to prevention of recurrent deformity - this includes synovectomy, ulnar collateral ligament release, radial collateral ligament and capsule reconstruction, ulnar intrinsic release -/- crossed intrinsic transfer and extensor tendon realignment. Post-operative splinting is of paramount importance. When the soft tissues and/or skeleton are inadequate, excision arthroplasty or joint fusions are occasionally indicated.

Mild, correctable boutonniere deformities may respond to a distal extensor tenotomy in combination with a PIP joint synovectomy. More severe deformities require reconstruction of the attenuated central slip. When joint changes intervene, the surgeon must decide between fusion and joint replacement.

Swan neck deformity with extensor overactivity at the proximal interphalangeal joint may be secondary to proximal or distal joint disease. Reconstruction of metacarpo-phalangeal disease should precede or accompany the PIP joint surgery. Correction of a mallet deformity may require DIP joint fusion. Commonly, the flexor-extensor imbalance is a consequence of flexor synovitis which must be attended to. PIP joint stabilisation may be necessary. When joint destruction is present, fusion or replacement is possible.

Complex Hand Contractures: Seeking a Solution

Dr M Daya

Introduction

Contractures of the hand that involve the skin and subcutaneous only are generally easier to treat and achieve a predictable outcome. Once other deeper structures become contracted, be it primary or secondary the functional outcome following treatment is seldom achieved. These deformed and functionally handicapped hands have in addition a combination of joint contracture or ankylosis, tendon shortening, peritendinous scarring, intrinsic tightness and shortened and/or stiff digits. The overlying skin cover is non compliant and the surgery directed at the deeper tissue cannot be undertaken without first performing a skin release and skin replacement. The skin replacement can be provided by a skin graft/substitute, or flap.

Method
A cohort of patient with complex contractures that have undergone surgery for the release of both skin and deep tissues will be demonstrated. The surgery includes bone osteotomies, joint capsulotomies, tendon lengthening, web space deepening and soft tissue cover or resurfacing. The soft tissue cover included full thickness skin grafts, integra and split skin graft, regional and free flaps. The post operative plan included a combination of splintage and a mobilization programme. Postoperative analgesia was oral and parenteral. In one patient brachial block infusion was used.

Results
The use of flaps provided the best form of cover with the least soft tissue recontracture. The use of integra despite been full thickness skin substitute did not prevent recontracture. Post operative management especially the hand therapy remained a stumbling block to a satisfactory outcome. The need for the insertion of K-wires or the timing of removal thereof wires that were used either for internal stabilization or splintage remained unclear in the series.

Conclusion
There is little doubt that the reconstructions demonstrated an improvement in the function of the hand. The results nevertheless fell short of expectations.

Thumb Hypoplasia

Prof MA Tonkin

A functional modification of the Blauth classification of thumb hypoplasia directs the surgeon to the most appropriate surgical reconstruction. Type 1 (small) requires no surgery. Types 2 and 3 have varying degrees of soft tissue and bone/joint hypoplasia. Each may be accompanied by extrinsic anomalies, intrinsic hypoplasia and a variable degree of metacarpo-phalangeal joint instability. They differ in that Type 2 hypoplasia harbours an adequate CMC joint and Type 3 an inadequate CMC joint. Type 4 is the floating thumb (pouce flottant) and Type 5 is an absent thumb.

If the CMC joint is adequate (Type 2), reconstruction of the existing thumb is appropriate. The clinical assessment determines whether the first web requires release, whether the metacarpo-phalangeal joint requires a soft tissue stabilisation or joint fusion and whether an opposition transfer is appropriate. The nature of extrinsic anomalies may become apparent at the time of surgery. Commonly the flexor pollicis longus is anomalous but is not often reconstructed.

Pollicisation is appropriate when the CMC joint is inadequate (Types 3, 4 and 5). The surgical technique of pollicisation is described, emphasising modifications of standard techniques. 42 pollicisations are assessed with the results in 16 repeated at an average of 3 years after the first assessment. Results confirm that those with a forearm deficiency and finger deformities have a poorer pollicisation, with decreased grip and pinch strengths, decreased motion in all planes and increased time to complete functional tasks. A comparison of age-related results indicated that grip strengths and the times to complete Jebsen functional tasks improve with age but remain the same relative to age norms.

Osseo-Integrated Finger Prosthesis (and a Young Boy's Earring)

Dr M Solomons, Mr S Kritzinger

Subtotal finger amputations are cosmetically unsightly. Matched silicone prostheses are cosmetically acceptable but to a lack of fixation are functionally limiting. Osseointegration offers a solution to this problem but skin/implant infection is a real problem. We offer a novel solution to allow for keratinisation of the tract.
We would like to report a series of 4 Osseo-integrated prostheses using MODIFIED dental endoprosthetic technology.

7 Flap Plasty in Burn Contractures of the Upper Limb

Dr M Daya

Introduction
There are several methods for release of burn contracture. Z plasty technique is the ideal choice for thin band contractures where the surrounding skin is normal. Broad band contractures compel the surgeon to use release and skin grafting. Flap surgery on scar tissue is prone to flap loss. The 7 flap plasty limited the zone of surgery with greater rewards in terms of length gain. We went against conventional teaching by raising flaps in the scarred zone.

Materials & Methods
A prospective study was undertaken on 42 contractures in the upper limb to determine the outcome of burn contracture release using the 7 flap plasty. The distribution of the contractures included the axilla, elbow, digits and web spaces. The contracture length was assessed by measurements undertaken preoperative. The intra operative and post operative gain in length was determined.

Results
There was doubling of the length at the end of the operation with a continuous increase subsequently. Minor tip loss was not uncommon, but there were few total losses. These healed uneventfully but total flap loss requiring grafting. Overall, there was no compromise in length gain.

Conclusion
The 7 flap plasty has become our first choice, for release of short, tight, burn band contractures. The study challenges the idea that flap raising in burns scars has a high risk of skin loss. Although tip loss is not uncommon, this does not seem to affect the long term result of the contracture release.

Hook-Nail Deformity

Prof MA Tonkin

Hook-nail deformity following fingertip injuries are a consequence of loss of bone and pulp support of the nail bed and distal pulp tether. Kumar et al (1993) considered that a loss of bone was the most important factor in leading to a hook-nail deformity and that failure to attend to the bone loss led to a recurrence of deformity following surgical reconstruction. Previously, in 1983, Atasoy had described the antenna procedure. However, there have been few reports of results of this surgical reconstruction. This paper describes seven patients in which hook-nail deformity was reconstructed by an antenna procedure.

The nail is removed. A fish mouth incision allows release of the nail bed tether to the distal pulp. Elevation of the nail bed is supported with three fine K-wires and a cross-finger flap provides support to the elevated nail bed.

In 7 patients with an average follow-up of 4 years, the appearance was improved in all. In all cases the donor site was considered satisfactory. Sensibility and function were normal. However, there was some recurrence of deformity in two patients and the pulp contour was different in all. One of the modifications in technique, excising a part of the distal end of the nail bed, results in a shorter nail but with decreased hooking.

In spite of severe tissue loss, satisfactory results can follow the antenna procedure.

SESSION 6

Obscure Wrist Pain

Prof MA Tonkin

Obscure wrist pain is the hand surgeons' back pain. However, the finding of precise and reproducible tenderness, in combination with the application of selected provocative tests, allows diagnosis in many cases. A systematic examination begins on the radio-dorsal aspect of the wrist, preceding dorsally to the ulnar aspect of the wrist and

continuing on to the ulnar aspect of the anterior surface and there-on to the radio-palmar structures. A clinical diagnosis may become apparent without the necessity for sophisticated investigations in the following conditions:

1. Thumb CMC joint arthritis
2. Wrist STT joint arthritis
3. Scaphoid fracture
4. De Quervain's stenosing tenovaginits
5. Paratendinitis crepitans (intersection syndrome)
6. Occult ganglion cyst
7. Scapholunate dissociation
8. Kienböck's Disease
9. Inferior radioulnar joint pathology
10. TFCC tear
11. Ulno-carpal abutment
12. Ulno-carpal instability
13. ECU instability
14. Piso-triquetral arthritis
15. Fractures of the ulnar styloid, pisiform, triquetrum and hook of hamate
16. FCU tendinitis
17. FCR tendinitis

The Dorso-Distal Scaphoid Approach

Prof U Mennen

Introduction

The standard approach to explore and fix scaphoid fractures has been volar distal (e.g. Matte-Russe) approach, or the dorso-poximal approach (e.g. for small proximal scaphoid fragments). We describe a new approach to the scaphoid from dorsal and distal (DDSA).

Alternative approach

The alternative approach to the scaphoid from distal is a dorsal entrance in the vascular safe triangle between the extensor pollicis longus and the abductor pollicis longus/extensor pollicis brevis, i.e. distal part of the "snuff-box". This area is easily found 1-2cm proximal to the trapezium metacarpal I joint. The superficial radial nerve and veins are identified and retracted, proximal to this triangle the radial artery is identified and protected. Only a thin layer of subcutaneous tissue separates the "bare" area on the scaphoid.

A short proximal extension of the incision reveals the radial convex surface of the scaphoid. Inserting an instrument such as a "Macdonald" enhances the viewing of the scaphoid up to the proximal pole.

Conclusion

We find that the dorso-distal scaphoid approach is technically easy to perform, violates less essential anatomical structures, gives adequate scaphoid exposure, allows for additional scapho-radial procedures to be performed, has less chance to pierce the scaphoid waist, and leaves a more cosmetically acceptable scar.

A Novel Surgical Technique for the Management of Grade 3B Kiënbock's Disease

Dr SL Carter

Currently there is no definitive treatment for Grade 3B Kiënbock's disease and surgical management of this condition remains controversial. Numerous operative procedures have been described with variable results. I would like to describe a case series of 6 patients with this disorder managed successfully with a novel surgical technique, lunatectomy with dorsal scaphotriquetral capsulodesis. Five unilateral and 1 bilateral procedures were performed over a period of 3 years, with reliable pain relief, no postoperative complications and maintenance of 50% total active movement. I believe that this technique provides a valuable addition to currently available surgical options.

AC BOONZAIER LECTURE
On Surgeons, Heads, Hearts and Hands – A Philosophy

Prof MA Tonkin

SESSION 7

Obstetric Brachial Plexus Palsy

Prof MA Tonkin

Brachial plexus birth palsy occurs at an incidence of 1 in 1000 births, with increased risk factors being increased birth weight, shoulder dystocia, maternal short stature, diabetes, instrument delivery and breech delivery. The more common paralysis patterns are those affecting the C5,6 outflow and the C5,6,7 outflow. Pan plexus lesions are less common. Examination and precise documentation of the clinical picture is complemented by radiological and electrical investigations, which determine indications and timing for neurosurgical exploration.

Gilbert and many others have advocated neurosurgical reconstruction for those patients who have not regained elbow flexion at three months after birth. Clarke and others believe that the predictability of recovery can be improved by including the return of other upper limb functions, incorporating the presence or absence of these functions into a score which indicates when surgery is appropriate.

The neurosurgical options are those of neurolysis, intra-plexal repair, extra-plexal repair, muscle and nerve transfers and muscle neurotisation. The choice of surgery will depend upon the pattern of injury, the aims of surgery and the preference of the surgeon, but will usually involve a combination of intra-plexal and extra-plexal repairs. Examples of reconstructions for different patterns of injury are described. It is necessary to emphasise that a continued observation of the integrity of the glenohumeral joint, in particular, is necessary before, during and after neurosurgical reconstruction. Posterior dislocation of the glenohumeral joint can occur early and requires immediate attention.

The results of combined neurosurgical and orthopaedic intervention for shoulder and elbow function are good. The results for return of hand function in pan plexus lesions are superior to those in adult plexus lesions.

The Oberlin and Modified Oberlin Nerve Transfer

Dr M Solonons, Dr R Nicholson

Restoration of elbow flexion is one of the major challenges in Brachial Plexus surgery. Upper plexus (C5, C6) injuries can result from traction or penetrating trauma. End to end repair is invariably not possible and nerve grafting is often utilized. The combination of nerve grafting, dilution of axons and the distance to target muscle results in less than desirable outcomes.

In 2004 Oberlin et al described using a fascicle of the ulna nerve and suturing this end to end to the biceps branch of the MCN. Due to the fact that this anastamosis is close to the target muscle and obviates the need for a graft results are reported as improved and flexion is soon earlier than other techniques.

We would like to report on our experience with this technique and modifications thereof.

Biomechanics of Tendon Transfers in Ulnar Palsy

Dr JW Brandsma, Dr RJ Schwarz

Paralysis of the intrinsic muscles of the hand causes significant impairment in hand function. There are many biomechanical issues involved in tendon transfers. These principles are discussed with specific relation to tendon transfers. The most significant loss in an ulnar paralysis is the loss of the interossei muscles resulting in overt or

latent claw finger deformity. The interosseus muscles, the primary flexors of the MCP joints, could be named the 'anti-clawing' muscles. Operations for claw finger correction differ by their choice of donor muscles, routes and insertions (Brandsma and Brand, 1992; Schwarz and Brandsma 2006). A second important functional loss is decreased pinch strength due to paralysis of some thenar muscles and the first dorsal interosseus. Some debate exists among surgeons over which of the many proposed operations is the 'best'. This presentation addresses this 'confusion' by examining the biomechanics involved in the common transfers to enable the hand surgeon to rationally decide which intrinsic replacement procedure is most suitable for a given patient.

Brandsma JW, Brand PW: Clawfinger correction: considerations in choice of technique. J Hand Surg, 17B;615-621.

Schwarz RJ, Brandsma JW. Biomechanics of intrinsic replacement in ulnar palsy. J Hand Surg, submitted

The Upper Limb in Cerebral Palsy

Prof MA Tonkin

The classical upper limb deformity in cerebral palsy is one of internal rotation and adduction of the shoulder, flexion of the elbow, forearm pronation, wrist flexion and ulnar deviation, finger flexion and thumb flexion and adduction. The preoperative assessment must consider:

1. General neurological condition
2. Type of neuromuscular disorder
3. Extent and topography of upper limb involvement
4. Age
5. Hand sensibility
6. Type of deformity - specific joint positions
7. Voluntary muscle group control.

Those patients with a predominately spastic type of deformity respond better to surgical intervention. Although complicated functional assessments exist, a simple assessment describing whether the limb is functionless, used as an assist or has some grasp and release in a simple manner or good manner provides an effective direction for the surgeon. An occupational therapy assessment includes occupational performance tasks, grasp and release activities, bilateral activities and assessment of sensation. Importantly, one must consider whether contraction of particular muscle groups is in phase or out of phase and whether the relaxation phase is normal or slow.

Deformity at each joint level is a consequence of imbalance of paretic and spastic muscles acting across unstable joints. The principles of surgical correction are to release the deforming forces, augment weak motors and stabilise joints.

This paper describes surgical procedures at each joint level and the indications for those procedures. Results of surgery for pronation deformity, wrist and finger deformity and thumb deformity are presented. After careful assessment, surgery can be beneficial in improving function and appearance provided that expectations are realistic.

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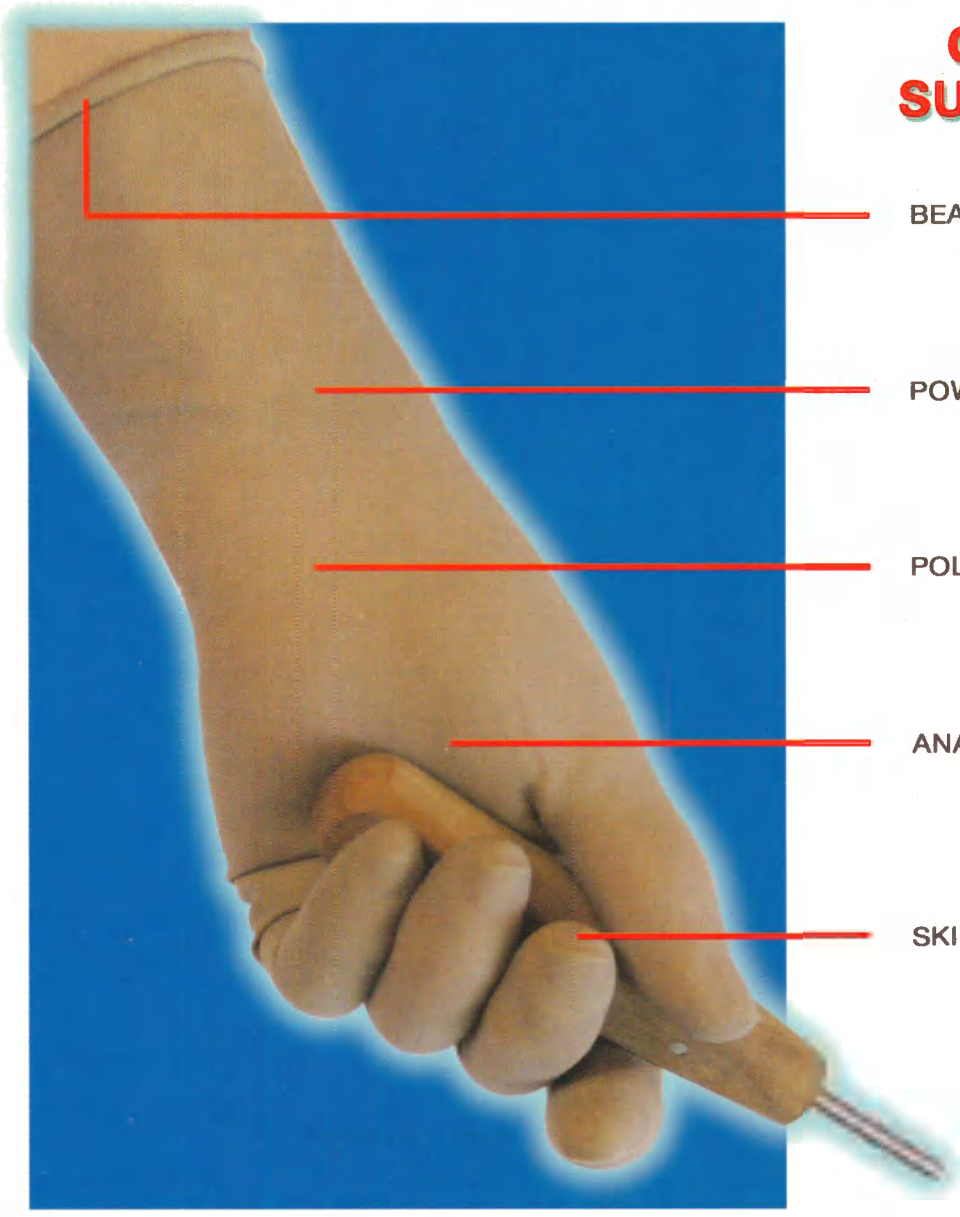

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