Theodore Rasmussen

THE AMERICAN ACADEMY OF NEUROLOGICAL SURGERY

TWENTY-FIRST ANNUAL MEETING

PEBBLE BEACH, CALIFORNIA

OCTOBER 18-21, 1959

THE AMERICAN ACADEMY OF NEUROLOGICAL SURGERY

Twenty-first Annual Meeting

Del Monte Lodge
Pebble Beach, California

October 18-21, 1959

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J. Lawrence Pool
Wesley A. Gustafson

Mason – (Root's resident) – 72 pt. since July 1958

– NOTES –

serum Na –
" Cl –
" CO_2 –
" K –
} no significant changes in average neurosurgical pt

urine electrolytes studied also

Controls – no trauma or operation –

② craniotomy for neoplasm

③ " – hypothermia – most profound retention of Na & Cl

④ " + steroid therapy – prolonged retention of Na & Cl

ⓐ minimal loss of g Na ⓑ slightly greater loss of K
ⓒ decrease of blood volume ⓓ? lengthening in prothrombin time –

CSF electrolytes not studies –

BUN levels back to normal 1st day after operation – multiple doses of urea not studied in this series –

Blood – 51 dogs – artificial respiration, curarization – no general anesthesia – O_2 concentration in respired air altered – 10 min. allowed for equilibrium – external CSF measured – 75% CSF equilibration time 90 sec. + arterial equilibration time 47 sec. –
blood flow studies done on monkey – adding 5% CO_2 to 21% O_2 in respired air doubles brain blood flow – ot. studies done on ventricular fluid – in pt ē carotid occlusion + infarction, the O_2 tension in ipsilateral ventricle

MONDAY, OCTOBER 19, 1959

8:30 A.M. – Registration

MORNING SESSION

9:00 A.M.

1. PHYSIOLOGICAL CHANGES ASSOCIATED WITH ADMINISTRATION OF UREA FOR THE REDUCTION OF INTRACRANIAL PRESSURE

Michael Mason and John Raaf, Portland

Since April of 1958 we have used urea intravenously and by nasogastric tube in fifty surgical and non-surgical patients. Clinically, reduction of intracranial pressure was obtained with very satisfactory results, excellent surgical exposure usually being obtained.

The problem of fluid and electrolyte replacement following a two to three liter diuresis within the first twenty-four hours became apparent early. Little information on electrolyte losses with urea-induced diuresis was available. The possibility of altered blood coagulation was also considered since such changes are known to occur in patients with clinical uremia. With the rapid mobilization and excretion of body fluids, it was felt that certain changes in the circulating blood and plasma volumes would occur.

Quantitative data on serum and urine electrolytes on "control" non-surgical patients were obtained preceding and following diuresis. The same data was then obtained from patients who underwent surgery. Circulating blood and plasma volumes during and following diuresis were determined and correlated with the patient's clinical picture. Blood coagulation tests were done on patients preceding and following diuresis.

9:20 A.M.

2. A STUDY OF CEREBROSPINAL FLUID OXYGEN TENSION (Preliminary Experimental and Clinical Observations)

Byron M. Bloor, John Fricker and John McCutchen, Cleveland
Introduced by Spencer Braden

Development of a stable platinum microelectrode has made possible continuous, quantitative oxygen tension measurements in any body fluid accessible to a 2.5 inch long guage needle.

Oxygen tension determinations on the cerebral cortex are difficult, and the information obtained is pertinent only to the small area of brain or circulation under surveillance. As an approach to measurements of the mean oxygen tension of the entire brain, a study of the relationships between cerebrospinal fluid oxygen tension, blood oxygen tension and the cerebral circulation has been undertaken. These studies indicate that changes in the latter two parameters are quickly reflected by changes in the oxygen tension of the cisternal and ventricular fluid. These data and their implications will be discussed.

was double that in the normal hemisphere's ventricle — seems established that — NOTES — CSF tension reflects the mean O_2 tension in the brain —

dilrode #400 — amplifier #400 — not commercially available —

Welch — tubes in arachnoid villi open into sinus & studied in serial sections — tubes collapse when intracranial pressure is higher than venous pressure — fairly constant critical pressure must be reached before any flow occurs — reverse flow is minimal & similar to that seen when commercial dura is used as the membrane —

Nulsen — first pt 2 yr after op. head early thickened from 1½ to 3 cm — removal of shunt was followed by prompt increase of intracranial pressure requiring re establishment of the shunt — now 11 yr pt has IQ in 140 —

50 cases — 14 deaths — 30 good development — 6 retarded —

38 selected cases — (excluding cases when poor judgement was used — too early after meningitis, etc.) — 6 deaths — 30 good development — 2 deaths —

Complications — venous plug most frequent (14) — ventricular plug (7) — bacteremia (5) — disconnection (5) — defective valve (2) — caval thrombosis (2) — subdural hematoma (3) — op. infection (5)

DISCUSSION opened by Robert Fisher

9:40 A.M.

3. THE PERFUSION OF ARACHNOID GRANULATIONS

Keasley Welch and Verner Friedman, Denver

A method has been devised for the perfusion of arachnoid villi of the monkey in excised preparations.

Studies of the flow-pressure relation reveal that flow is open and essentially unidirectional through elastic tubes from meninges to sinus above a critical pressure which is based upon interfacial tension between the cells of the villus and the perfusate. No effect of colloid osmotic pressure upon flow is detected.

These observations will be related to studies of the anatomy of the villi.

10:00 A.M.

4. CONTINUING PROBLEMS IN VENOUS SHUNTS FOR HYDROCEPHALUS

F. E. Nulsen and W. F. Collins, Cleveland

Despite constantly more general use of both Holter and Pudenz valve-regulated shunts from ventricle to superior cava or atrium with gratifying proportion of successful results, certain types of complication leading to failure persist in recurring. The valve themselves are rarely at fault either in permitting reflux of blood or in failing to regulate ventricular pressure at "proper" levels. Any blockage at the venous end by venous thrombosis is explainable by improper positioning, readily avoidable (and even correctable) by radiographic control of placement during surgery.

However, two not infrequent causes of failure still demand more consistent solution. Plugging of the ventricular end is easily remedied by its replacement, but the frequent acute difficulties that can develop late with sudden blockage of previously adequate drainage unfortunately demand continued surveillance of all patients even after two or three years of adequate shunt function. A rarer but more serious complication is the occurrence of bacteremia, presumably related to vegetations developing in cava or atrium at the end of the shunt and often curable only by its removal.

Possible solutions to these two problems will be discussed.

10:20 A.M.

5. OBSTRUCTIVE HYDROCEPHALUS FOLLOWING OPERATIVE REMOVAL OF CHRONIC SUBDURAL HEMATOMA IN INFANTS, EVENTUALLY RELIEVED BY TORKILDSEN PROCEDURE

John M. Meredith and I. Rinaldi, Richmond

Two cases in young infants are presented, one with a fatal issue and post-mortem studies. Communication with Doctor Matson reveals that this seems to be very unusual; in fact, I understand he has never seen it in his clinic; namely, an obstructive hydrocephalus of the "congenital"

Meredith -

Matson - since April 1938 - 26 pt. - shunts on obstructive hydrocephalus - continuing to use ureteral - lumbar peritoneal shunts in communicating cases - 5 of 26 pt. dead or have needed other procedures - 10 pt have continuously functioning valves - 16 pt have needed 1 or more revisions - complications similar to Nulsen's series -

Deoville - uses Holter valve in lumbar-peritoneal shunts -

Sweet - uses stilett in cardiac end for X ray visualization

Alexander - O_2 for air studies, so as to have prompt absorption + early operation -

McLaurin - acute - surgical evacuation within 3 days after date of injury - lucid interval: mortality 6% - epidermoid coma: mortality 77% - bilat. fixed dilated pupils: 94% mortality - dilated pupil is poor lateralizing sign - no pt made a rapid recovery after evacuation of hematoma - multiple burr holes, 3-4 on a side -

Steelman - developed in Phoenix for thoracic surgeons - power unit has heating + cooling units + circulates water thru blankets placed over pt. - used for up to 5 days - pt first cooled by immersing in ice water -

Loughead - up to 7° after drop after removing pt from bath -

type in an infant (shown by ventricular air and dye studies) who has had a previous craniotomy for removal of undoubted chronic subdural hematoma and its membranes overlying one or both cerebral hemispheres.

Apparently, in some fashion, after the hematoma has been evacuated, either due to subsequent obliteration of the lateral recesses of the basilar cisterns and fourth ventricle (?) by blood, adhesions, or some other more obscure mechanism, a true obstructive hydrocephalus developed, at least it was this type in our two cases, and was eventually relieved in one of our cases by the Torkildsen procedure for a period of five years (to date).

In the fatal case, there was an extremely adherent arachnoiditis of the posterior fossa and the upper cervical cord, making a Torkildsen procedure (planned to extend from the right lateral ventricle to the upper cervical subarachnoid space) impossible because no open space sufficiently patent could be found in the (cervical cord) subarachnoid space in which to insert the lower end of the catheter. At post-mortem examination of this case no gross tumor could be found in the brain, although studies of microscopic tissue from the brain (including the brain stem) are in progress at the present time.

DISCUSSION open by Donald Matson and ~~Robert Pudenz~~

Coffee

11:00 A.M.

6. ACUTE SUBDURAL HEMATOMA – A REVIEW OF 90 CASES

R. L. McLaurin and Forrest Tutor, Cincinnati

This survey is based on 90 patients operated on for subdural hematoma during the first three days after injury, ("acute subdural hematoma"). These patients requiring surgical exploration during the first 24 hours had a mortality of 74%, while those undergoing surgery later had 19% mortality. This suggests the futility of surgery immediately after head injury for this lesion.

From a prognostic viewpoint the presence of a lucid interval is extremely favorable while fixed dilated pupils give a nearly hopeless outlook. The prognostic and diagnostic significance of pupillary inequality, changes in vital signs, motor disturbances (including decerebrate reaction), size and distribution of hematoma, associated intracranial injury, and age of patient will be discussed.

DISCUSSION opened by Eben Alexander

11:20 A.M.

7. THE USE OF AUTOTHERM EQUIPMENT IN NEUROSURGICAL HYPOTHERMIA

Harry F. Steelman, Phoenix Since 1953
Introduced by John Green

With the development of AUTOTHERM automatic hypothermia system, modern automation technique is applied to body temperature control.

9# 3000 (blanket extra)

Boldrey – factors tending to reduce status of medical pro
① description of medical – NOTES – schools as 'trade schools'
② decline of sympathy for pt. & ascendancy of science –

Magoun – Jugbleigg Jackson, Pavlov, comparative anatomy, Freud –

King –

Nulsen – fluothane anesthesia for opening + exposure of 10 cm of sural nerve, which is sectioned + proximal end prepared for stimulation + recording – cooling nerve wipes out fast conducting fibers + allows recording of C fibers alone – no discomfort with marginal stim. if B fibers alone are activated – when ~~pain~~ delta fibers used, pt complained of ~~pain~~ varying sensations – when gamma + C fibers are activated pain was invariable – & satisfactory cordotomy vs pain would be produced – difference between C + delta pain now being studied –

Hack French –

This system eliminates the need for continuous monitoring of the patient's condition by operating personnel and provides a reliable means for maintaining the selected patient temperature. The system as used allows for a combination of ice immersion and blanket technique. Following a selected rate of rapid cooling in ice water the patient is placed in conventional heat exchange blankets and the desired temperature is obtained by automatic control of circulating fluid. If the patient temperature tends to drift below or above the preselected value, a large compensating change in the circulating fluid temperature is automatically produced by the machine. This alters the patient temperature so that it can maintain the desired hypothermic level. Experience has shown that the system thus employed is capable of obtaining and maintaining the desired temperature level with a minimum of attention when used on patients having a variety of physiological characteristics and surgical problems.

DISCUSSION opened by Harry Botterell

8. PRESIDENTIAL ADDRESS

Edwin Boldrey, San Francisco

AFTERNOON SESSION

2:30 P.M.

9. THE DARWIN CENTENARY AND CONCEPTS OF BRAIN FUNCTION
(a presentation for members, guests, and wives)

Dr. H. W. Magoun, University of California, Los Angeles, California

3:10 P.M.

10. A TRIGEMINAL SKIN REFLEX

Robert B. King, Syracuse

Studies of evoked trigeminal nerve potentials in cats suggested that a "skin reflex" might be present in this sensory system under certain experimental conditions. Such a "reflex" has not been demonstrated in other neurophysiological studies. Cats with chronic resections of the facial nerve and cervical sympathetic chain were prepared under light ether anesthesia. A stimulating electrode was inserted into the caudal portion of spinal V. The two major divisions of the infraorbital nerve were separated and recording electrodes were placed about each of these. The upper branch was transected proximal to the recording electrode. Strychnine crystals were placed on the surface of the medulla over spinal V near the stimulating electrode. The primary conduction spike and dorsal root reflex were initially recorded in both divisions of the infraorbital nerve. After transection of one division, no further potentials were recorded from its distal segment until after the dorsal root reflex was increased in amplitude and duration by the application of strychnine to spinal V. Then, with a brief delay and with reversed polarity (compared to the intact nerve), an evoked potential was seen in the distal portion of the cut nerve. Two possible mechanisms for this activity will be described. The manner in which such a "reflex" may modify sensation will be considered.

Sheldon – 10 pt. – enlargement of bony foramina –

– NOTES –

115 – total compression operations up to Dec. 1958

23 – recurrence of tic pain – 5 to 48 months –

11 – second compression operation

5 – other surgical Rx { 3 peripheral / 2 subtotal section of V

7 – have needed no Rx

Baker – 1st 100 cases of decompression operation – 75% had recurrent pain – those who had slight spasm less were the ones w/ good result – recent cases have had compression operation & results have been better –

Drake – standard operation up to opening of dura propria – 10 pt. – 7 still pain free –

Greenwood – 1 wk – 13 mo – range of time of anastomosis after angle tumor removal – average time 5 mo –

Drake – 6 cases of nerve graft after angle tumor removal – 1st 2 cases can now voluntarily wink the eye –

Alexander – 1 pt had good result when anastomosis was done 2 ½ yr after nerve section – case of K.G. McKenzies –

3:30 P.M.

11. STUDIES ON THE RELATION OF PERIPHERAL NERVE FIBER SIZE TO PAIN PERCEPTION

F. E. Nulsen and W. F. Collins, Cleveland

The incompleteness of the anatomist's delineation of afferent pathways in cord and brain stem, especially those small fiber systems relating to pain perception, is evident to the neurosurgeon undertaking tractotomy for pain relief. The electrophysiologist goes to the other extreme by demonstrating a wide diffusion of small fiber activation on peripheral stimulation at every level of cord and stem, often concluding that pain perception should not be susceptible of blockage even at the cord level. With the finding in animals, however, that more finely grouped peripheral axons (isolated by methods depending upon threshold and cold susceptibility differences relating to fiber size) fire homogeneously into more limited or specific pathways centrally, it becomes of interest to learn from the human witness which of these fiber-size groups contribute to pain perception.

Such a study has been possible in twelve patients undergoing monitored sural nerve stimulation incidental to anterolateral cordotomy. A surprising uniformity of sensory interpretations relating to activation of specific fiber size groups has been found. These correlations and their implications will be discussed.

DISCUSSION opened by Henry Schwartz and Barnes Woodhall

3:50 P.M.

12. TRIGEMINAL COMPRESSION – A REVIEW OF OUR EXPERIENCES OVER A SIX-YEAR PERIOD

C. Hunter Shelden and Robert H. Pudenz, Pasadena

The authors have now personal experience with over 150 posterior root compression procedures in the treatment of trigeminal neuralgia. The results in this series of patients will be presented.

DISCUSSION opened by George Baker

4:10 P.M.

13 FOLLOW-UP ON HYPOGLOSSAL FACIAL ANASTOMOSIS

James Greenwood, Jr., Houston

This is a short paper with slides showing the eventual results of hypoglossal facial anastomosis with a comparison with results from spinofacial anastomosis and plastic surgical procedures. There are thirteen cases of hypoglossal facial summarized with color slides and a 3-minute movie.

DISCUSSION opened by Lawrence Pool

4:30 P.M. EXECUTIVE MEETING

Uihlein – craniotomy for a frontal parasagittal tumor – cardiac arrest just – NOTES – before operation started – pulse back 2½ min later, induced by open cardiac massage – hypothermia rapidly induced, craniotomy done – removal of intracerebral hematoma & mural nodule of hemangioma – pt's post op course was uneventful – greatest emergency is establishment of oxygenation – if massage of heart is started within 3 min. pt has a good chance of making satisfactory recovery –

Porter – advocates deeper anesthesia until operation is completed –

Raaf – letter from Pool –

Gustafson – 5 cardiac arrests in 1958 – only previous one was 1944

Murphey – apparatus under development to recognize cardiac arrest & to start the heart thru intact chest wall – for use in hypothermia & intentionally induced cardiac arrest –

Sweet – cardiac arrest on stimulation of brachial plexus during dissection from scar –

L. French – relation of O_2 & CO_2 is the important factor & the depth of anesthesia is less important – the various stimuli are precipitating causes –

Stern – ⅓ of efferent fibers are gamma fibers going to the muscle spindle – 18 cats – gastrocnemius muscle studied after deafferentiation of the limb – stimulation of both globus pallidus & ventrolateral nucleus of thalamus caused profound inhibition of gamma fiber activity –

TUESDAY, OCTOBER 20, 1959

MORNING SESSION

9:00 A.M.

14. THE MANAGEMENT OF CARDIAC ARREST IN NEUROSURGICAL PROCEDURES

Alfred Uihlein, Rochester

I have had the unfortunate experience of having four cases of cardiac arrest during neurosurgical procedures and was able to pull half of them through. The case histories in each instance were of interest. In none of them was the possibility of cardiac arrest suspected preoperatively. Two patients had explorations of the posterior fossa; another patient was undergoing lumbar sympathetic ganglionectomy for arteriosclerosis obliterans, and a fourth case, a patient with a benign brain tumor, developed cardiac arrest during induction for his craniotomy. Cardiac massage corrected the situation and when stabilized, we proceeded with craniotomy at same sitting. The method of managing these problems will be discussed with assistance from our general surgeons in the handling of some of these disturbing problems.

9:20 A.M.

15. NEUROPHYSIOLOGIC FACTORS UNDERLYING CARDIAC ARREST DURING ANESTHESIA

R. W. Porter, Long Beach
Introduced by J. French

Observations in experimental animals emphasize the importance of visceral reflex activity as a factor capable of inducing cardiac arrest during the induction and withdrawal of anesthesia. It has been noted that with gradually deepening anesthesia there is a definite, although transient, period of augmentation of visceral reflexes and during this time electrical stimulation of the proximal end of the vagus nerve will frequently induce cardiac arrest. These variations in reflex activity seem to parallel closely changes in the functional integrity of the brain stem reticular formation, as determined by its electrical response to afferent nerve stimulation. During this period of increased visceral reflex activity, there can be evoked in the brain stem a high voltage, long latency response which is not seen in the waking state. These findings are interpreted as indicating that during anesthesia facilitatory and inhibitory influences affecting the brain stem are distorted and an imbalance may result. It is proposed that these altered states of brain stem function, and hence of vagal activity, may account for some of the visceral dysfunction seen clinically during anesthesia. Therefore, procedures which stimulate vagal activity should be limited during induction and withdrawal of anesthesia when brain stem instability is greatest.

DISCUSSION opened by Earl Walker and John Raaf

Parkinsonism might be due to alpha - gamma, / imbalance - lesions in globus pallidus or thalamus restore this balance -

Tobias - working ē deuteron beam + higher voltage beams of alpha particles + heavy particles - pituitary lesions studied - also pituitary - hypothalamic relations - subtotal done to pituitary produces adenomas -

Lawrence - started Rx hypophysis Jan mammary CA 1953 - 24 pt. - 1 still alive second series started 1956 - 64 cases - total of 4 exposures - up to 27,000 R for CA - total 115 pt. - 90 breast CA - 11 diabetes - 7 acromegaly -

30 objective remissions in 73 pt. (15 died before 30 days - 2 had bronchogenic CA)

up to 20,000 R can be delivered safely to sella in 2 weeks -

Larsson -

Sweet - summary of Vienna conference in spring 1959 - 333 cases - 80% correct (As^{74}) - 70% correct glioblastoma - missed 8 out of 16 astrocytomas - Ralf Forrest (Glasgow) - intra nasal implantation of gt. 90 - 30 pt. -

Stockholm - hypophysectomy nearly all done intra nas

J. French -

~~9:40 A.M.~~ 10:10 AM

16. ACADEMY AWARD PRESENTATION

INHIBITION OF THE MUSCLE SPINDLE DISCHARGE BY VENTROLATERAL THALAMIC STIMULATION AND ITS RELATION TO PARKINSONISM

Jack Stern, Seattle

Coffee

10:20 A.M. SYMPOSIUM – RADIATION NEUROBIOLOGY

11:05 **17. DEVELOPMENT AND PROGRESS OF PROGRAM IN HIGH-ENERGY RADIATION NEUROBIOLOGY AT THE DONNOR LABORATORY**

Dr. Cornelius A. Tobias, Professor of Medical Physics, University of California

11:25 **18. MEDICAL APPLICATIONS OF HIGH-ENERGY IRRADIATION WITH HEAVY PARTICLES**

Dr. John H. Lawrence, Director, Donnor Laboratory, University of California

11:45 **19. EXPERIMENTAL NEUROSURGERY WITH A 185 MEV. PROTON BEAM**

Dr. Borje Larason, Professor of Physics, The Gustaf Werner Institute for Nuclear Chemistry, University of Uppsala, Sweden

12:30 **20. CURRENT STATUS OF ISOTOPIC LOCALIZATION OF INTRACRANIAL LESIONS**

Dr. William H. Sweet, Associate Clinical Professor of Surgery, Harvard Medical School

DISCUSSION to be opened by A. Ward, J. French and T. Rasmussen

12:50 P.M. EXECUTIVE MEETING

May 1955 – Dec. 1958 second series of pituitary scans – (Cu^{64}) – 1% false localization – last used in were in post. fossa – 3 out of 34 meningiomas missed – cylinder fixed to sphenoid bone prevents CSF leak – 14 some – ally & yt.^{90} pellets –

Rovve - 456 pt. - hypaque 50% - 540 angiograms - 16-120 cc
73% under general anesthesia - NOTES - 91 tumors - 5% erroneous
diagnosis - 1 error in subdural hematoma group -
183 vascular lesions - 3 deaths (0.5%) - inadequate
visualization 11 (2.5%) - diagnostic errors 10 -
complications 19 (10 neck hematomas - 0.8% temporary
neurological deficit, 0.4% permanent deficit) -
3 deaths -

Murphey - 1 death from pneumothorax following subclavian
angiogram - total subclavian should not be done at
same sitting -

Uihlein - 5-72 cc - usually cut down - complications
rare + minimal - positive in 8% of pt. ∴ seizures -

Scoville - 595 angiograms - 8% complications - 2.4%
serious (7 deaths 5 hemiplegias) - half under local
+ half under general anesthesia - all critically ill -

Gustafson - complication rate twice as high in univ. hosp.
(done by residents) as in private hosp. (done by senior
staff) -

Matson - complications rare + minimal in children -
combined air studies + angiograms in children 4-12 yrs
seems safe - middle cerebral vessels are normally
high in infants - assumes more adult configuration
by age 2 yrs - post mortem angiograms studied -

Drake - 24 cases in literature 2 deaths - 4 cases
had proximal ligation of vertebral artery (1 death) -

WEDNESDAY, OCTOBER 21, 1959

MORNING SESSION

9:10 **9:00 A.M.**

21. ANGIOGRAMS – VALUES AND HAZARDS

Stuart Rowe, Pittsburgh

In an effort to assess the diagnostic procedure of carotid angiogram, we engaged in a review of experience with this diagnostic x-ray. The present paper deals with the most recent 500 angiograms, and includes a review of the conditions in which the procedure was employed, its accuracy in diagnosis as verified by operation or autopsy, and its dangers as indicated by the percentages of complications and fatalities. The initial phases of the study indicate that carotid angiography is a much less hazardous procedure than it is sometimes considered to be, particularly by our medical confreres.

9:30 **9:20 A.M.**

22. THE VALUE OF ARTERIOGRAPHY IN THE DIAGNOSIS OF CONVULSIVE DISORDERS AND OTHER INTRACRANIAL LESIONS IN CHILDREN

A. Uihlein and H. Kieth, Rochester

(less than 17 yr of age)

71 We reviewed ~~108~~ 138 patients in whom angiography was performed. ~~Fifty-two~~ of these were studied because of a convulsive disorder with a suspected focus. Fifty-six children were thought to have focal organic lesions but did not necessarily have convulsions. In the fifty-two children with primarily a convulsive disorder, angiograms confirmed or indicated the presence of a gross intracerebral lesion in but five cases. However, in thirty-eight children, or 73 per cent, the angiograms showed no gross lesion and treatment by means of medication or ketogenic diet could be planned with confidence. In fifty-six children investigated by angiography, because of the possibility of a space occupying lesion, which was rarely associated with convulsions, twenty children, or 35 per cent, were found to have definite gross lesions, many of which were amenable to surgical treatment. In twenty-eight of these patients, gross lesions were ruled out by angiography and treatment other than surgical could be undertaken.

DISCUSSION opened by W. B. Scoville and W. A. Gustafson

9:40 A.M.

23. ANEURYSM OF BASILAR ARTERY – DIRECT SURGICAL ATTACK IN ONE CASE

C. G. Drake, London, Ontario

Walton, following an extensive review of the literature, felt that 15% of aneurysms were on the vertebral-basilar system. A few instances of direct or indirect surgical attack on these lesions have been reported, and

24 vertebral angiograms – 19 6 lesions found –

hypothermia + urea — both carotids + both good result —

- NOTES -

Murphey —

Kirgis —

Sheldon — ischemia as cause of degenerative diseases —

Greenwood — state of myocardium + its influence on cardiac output may be important factor —

Murphey —

Alexander — revision of air conditioning system —

Baker — special masks now used in Mayo Clinic —

Mayfield — bacterial colony counts lower if clean towels are constantly added to limit dried blood near field —

vertebrals occluded for 5 + 8 min @ 5 min interval—

the literature will be reviewed. In view of the limited experience with these aneurysms, and as few basilar artery aneurysms have been attacked directly, it seemed proper to present in some detail the case of a 50 year old man, who had had three subarachnoid hemorrhages. A saccular aneurysm of the basilar artery arising at the level of origin of the superior cerebellar arteries was clipped without incident by a route through the middle fossa into the mouth of the incisura.

DISCUSSION opened by F. Murphey

10:15 **10:00 A.M.**

24. ACUTE FOCAL CEREBRAL ISCHEMIA WITHOUT EVIDENCE OF ORGANIC OBSTRUCTION OF THE ARTERIAL TREE SUPPLYING THE INVOLVED AREA OF THE BRAIN

Homer Kirgis and Raeburn Llewellyn, New Orleans
Introduced by D. Echols

Although it has been demonstrated that at least thirty per cent of patients who develop attacks of acute focal cerebral ischemia have partial or complete occlusion of the internal carotid artery by an atheromatous lesion of the proximal portion of that artery, many such patients have no evidence of organic obstruction of the arterial tree supplying the involved area of the cerebrum. It is evident also that the latter group of patients may present equally as varied a definitive reaction to the cerebral ischemia as patient with the atheromatous lesion. That is, several transient attacks of cerebral ischemia may occur followed by freedom from the attacks, transient attacks may occur followed by development of permanent neurologic defects or permanent major neurologic deficits may appear without warning. Although the final precipitating factor in the production of this syndrome might conceivably be a fall in systemic arterial pressure if there were some organic obstruction of the involved arterial tree, a more localized reaction must be postulated if no such obstruction exists. It is theorized, as illustrated by the cases reviewed, that the localized reaction is spasm of the carotid arterial tree and that severe and permanent neurologic deficits are more likely to occur in the presence of certain anomalous anatomic patterns of the circle of Willis.

DISCUSSION opened by L. French

Coffee

11:00 **10:40 A.M.**

25. PREVENTION AND TREATMENT OF NEUROSURGICAL INFECTIONS

Courtland H. Davis and Eben Alexander, Winston-Salem

In the past 10 years careful records of the incidence and type of surgical infections on the neurosurgical service have been maintained. There has been a distinct rise in the past 5 years, reaching on one occasion the high rate of 3.6 per cent. These have been carefully maintained so that no infection is discarded, even though the case was originally a contaminated or dirty case to start.

The methods of study that have been employed to combat this

problem and the surgical details necessary to carry this out will be emphasized.

11:25 **11:00 A.M.**

26. THE CONSERVATIVE MANAGEMENT OF EXTRADURAL ABSCESS OF THE SPINE

Robert G. Fisher, Hanover

Interest has been stimulated recently in the conservative management of an extradural abscess of the spine. This case report is being submitted because of its interesting features and excellent result to date.

A 7 year old white girl who was quite overweight and anxious was admitted in critical condition to the Hitchcock Hospital, Hanover, N.H. with a staphylococcus septicaemia and pneumonia, pleural effusion and an extradural abscess of the spine found in the region of the second lumbar vertebra by aspiration of the extradural region. She had marked meningeal signs but no weakness. Her reflexes in the legs were absent and there was a bilateral Babinski response. No fluid could be obtained from the lumbar region and subsequently a cisternal myelogram disclosed obstruction to the passage of Pantopaque at the region of the second thoracic vertebra.

Because of her condition being so bad, surgery was deferred and she was placed on massive doses of antibiotics. She responded to these and within ten days she was able to walk without neurological signs and no meningeal irritation.

The literature has been surveyed and all authors stress surgery being necessary for this lesion. There are very few reports of the conservative management of this lesion. One wonders if this occurs more commonly than is recognized in extensive inflammatory lesions of the body.

This report indicates that some cases of pus in the extradural region may resolve with the use of the appropriate antibiotic. It by no means emphasizes that all extradural abscesses should be handled conservatively.

DISCUSSION opened by D. Echols

11:20 A.M.

27. EFFECT OF INTRACAROTID SODIUM AMYTAL ON EPILEPTIFORM ACTIVITY IN THE E. E. G.

T. Rasmussen, Richard Rovit and Peter Gloor, Montreal

In a small series of patients the injection of 10% sodium amytal in varying doses into the carotid arteries has been used to study the effect on bilaterally synchronous E. E. G. epileptiform abnormalities in patients with complicated seizure problems. Preliminary results suggest that this procedure may prove of value in differentiating primary from secondary epileptiform involvement of the centrencephalic system.

DISCUSSION to be opened by A. Ward

11:40 A.M. EXECUTIVE MEETING

Program of The Women's Auxiliary

of

THE AMERICAN ACADEMY OF NEUROLOGICAL SURGERY

SUNDAY, OCTOBER 18, 1959

6:30 P.M.	Cocktails	Del Monte Lodge

MONDAY, OCTOBER 19, 1959

11:00 A.M.	Ladies Registration	Lounge
11:45 A.M.	Group picture	
12:00 noon	No-host cocktail interim	
12:30 P.M.	Luncheon at Del Monte Lodge	
2:30 P.M.	Lecture by Dr. H. W. Magoun	
3:30 P.M.	Bus trip: 17-mile Drive and Carmel	
6:30 P.M.	Cocktails and Dinner at Lodge	

TUESDAY, OCTOBER 20, 1959

12:00 noon	Luncheon and Fashion Show, Mark Thomas Inn, Monterey. Busses leave Lodge at 11:45.
Afternoon	Free
7:00 P.M.	Cocktails Lodge
8:00 P.M.	President's Dinner-Dance (black-tie) Guest Speaker: Dr. Salvatore Lucia, San Francisco.

Membership Roster

of

THE AMERICAN ACADEMY OF NEUROLOGICAL SURGERY

FOUNDED OCTOBER 28, 1938

HONORARY MEMBERS – 4

	ELECTED
Dr. Winchell McK. Craig Rochester, Minnesota	1942
Sir Geoffrey Jefferson Manchester, England	1951
Dr. R. Eustace Semmes Memphis, Tennessee	1955
Dr. R. Glen Spurling Louisville, Kentucky	1942

SENIOR MEMBERS – 1

Dr. Olan R. Hyndman Iowa City, Iowa	1941

ACTIVE MEMBERS – 68

Member's Name	*Wife's Name*	*Year Elected*
Dr. Eben Alexander, Jr. Winston-Salem, No. Carolina	Betty	1950
Dr. George S. Baker Rochester, Minnesota	Enid	1940
Dr. H. Thomas Ballantine, Jr. Boston, Massachusetts	Elizabeth	1951
Dr. William F. Beswick Buffalo, New York	Phyllis	1949
Dr. Edwin B. Boldrey San Francisco, California	Helen	1941
Dr. E. Harry Botterell Toronto, Ontario	Margaret	1938
Dr. Spencer Braden Cleveland, Ohio	Mary	Founder

Member's Name	*Wife's Name*	*Year Elected*
Dr. F. Keith Bradford Houston, Texas	**Byra**	**1938**
Dr. Howard A. Brown San Francisco, California	**Dorothy**	**1939**
Dr. Harvey Chenault Lexington, Kentucky	**Margaret**	**1949**
Dr. Donald F. Coburn Kansas City, Missouri	**Max**	**1938**
Dr. Edward W. Davis Portland, Oregon	**Barbara**	**1949**
Dr. Charles Drake London, Ontario	**Ruth**	**1958**
Dr. Francis A. Echlin New York, New York	**Letitia**	**1944**
Dr. Dean H. Echols New Orleans, Louisiana	**Fran**	**Founder**
Dr. Arthur R. Elvidge Montreal, Quebec,		**1939**
Dr. Theodore C. Erickson Madison, Wisconsin	**Emily**	**1940**
Dr. Joseph P. Evans Chicago, Illinois	**Hermene**	**Founder**
Dr. Robert W. Fisher Hanover, New Hampshire	**Constance**	**1957**
Dr. John D. French Long Beach, California	**Dorothy**	**1951**
Dr. Lyle A. French Minneapolis, Minnesota	**Gene**	**1954**
Dr. James G. Galbraith Birmingham, Alabama	**Peggy**	**1947**
Dr. Everett G. Grantham Louisville, Kentucky	**Mary Carmel**	**1942**
Dr. John R. Green Phoenix, Arizona	**Georgia**	**1953**
Dr. James Greenwood, Jr. Houston, Texas	**Mary**	**1952**
Dr. Wesley A. Gustafson Chicago, Illinois	**Jennie**	**1942**
Dr. Wallace B. Hamby Buffalo, New York	**Hellyn**	**1941**

	Member's Name	*Wife's Name*	*Year Elected*
	Dr. Hannibal Hamlin Providence, Rhode Island	**Margaret**	**1949**
	Dr. Jess D. Herrmann Oklahoma City, Oklahoma	**Mary Jo**	**1938**
	Dr. Henry L. Hoyl Hanover, New Hampshire	**Katharine**	**1951**
	Dr. William S. Keith Toronto, Ontario	**Eleanor**	**Founder**
	Dr. Robert King Syracuse, New York	**Molly**	**1958**
	Dr. Ernest W. Mack Reno, Nevada	**Roberta**	**1956**
	Dr. George L. Maltby Portland, Maine	**Sim**	**1942**
	Dr. Donald D. Matson Boston, Massachusetts	**Dorothy**	**1950**
	Dr. Frank H. Mayfield Cincinnati, Ohio	**Queenee**	**Founder**
	Dr. Augustus McCravey Chattanooga, Tennessee	**Helen**	**1944**
	Dr. Robert L. McLaurin Cincinnati, Ohio	**Kathleen**	**1955**
	Dr. William F. Meacham Nashville, Tennessee	**Alice**	**1952**
	Dr. John M. Meredith Richmond, Virginia	**Etta**	**1946**
	Dr. Edmund J. Morrissey San Francisco, California	**Kate**	**1941**
	Dr. Francis Murphey Memphis, Tennessee	**Roder**	**Founder**
	Dr. Frank E. Nulsen Cleveland, Ohio	**Ginny**	**1956**
	Dr. Guy L. Odom Durham, North Carolina	**Suzanne**	**1946**
	Dr. J. Lawrence Pool New York, New York	**Angeline**	**1940**
	Dr. Robert Pudenz Pasadena, California	**Ruth**	**1943**
	Dr. John Raaf Portland, Oregon	**Lorene**	**Founder**

✓	**Dr. Aiden A. Raney** Los Angeles, California	**Mary**	**1946**
✓	**Dr. Rupert B. Raney** Los Angeles, California	**Alta**	**1939**
✓	**Dr. Theodore B. Rasmussen** Montreal, Quebec	**Catherine**	**1947**
✓	**Dr. David L. Reeves** Santa Barbara, California	**Marjorie**	**1939**
✓	**Dr. R. C. L. Robertson** Houston, Texas	**Marjorie**	**1946**
✓	**Dr. Stuart N. Rowe** Pittsburgh, Pennsylvania	**Elva**	**1938**
	Dr. Henry G. Schwartz Saint Louis, Missouri	**Reedie**	**1942**
✓	**Dr. William B. Scoville** Hartford, Connecticut	**Emily**	**1944**
✓	**Dr. C. Hunter Shelden** Pasadena, California	**Betty**	**1941**
	Dr. Samuel R. Snodgrass Galveston, Texas	**Margaret**	**1939**
	Dr. Hendrik J. Svien Rochester, Minnesota	**Nancy**	**1957**
	Dr. Homer S. Swanson Atlanta, Georgia	**La Myra**	**1949**
✓	**Dr. William H. Sweet** Boston, Massachusetts	**Mary**	**1950**
✓	**Dr. Alfred Uihlein** Rochester, Minnesota	**Ione**	**1949**
	Dr. A. Earl Walker Baltimore, Maryland	**Terrye**	**1938**
✓	**Dr. Exum Walker** Atlanta, Georgia	**Frances**	**1938**
✓	**Dr. Arthur A. Ward, Jr.** Seattle, Washington	**Janet**	**1953**
	Dr. Thomas A. Weaver Dayton, Ohio	**Mary**	**1943**
✓	**Dr. Keasley Welch** Denver, Colorado	**Elizabeth**	**1957**
	Dr. Benjamin B. Whitcomb Hartford, Connecticut	**Margaret**	**1947**
	Dr. Barnes Woodhall Durham, North Carolina	**Frances**	**1941**

Guests of The Academy

1959

DR. JOHN ADAMS. . . . . San Francisco, California
DR. FRANK ANDERSON . . . . . Los Angeles, California
DR. BYRON BLOOR . . . . . Cleveland, Ohio
DR. BARTON BROWN . . . . . San Francisco, California
DR. HENRY DODGE . . . . . Los Angeles, California
DR. ELDON FOLTZ . . . . . Seattle, Washington
DR. JACOB FOSTER. . . . . Salinas, California
DR. JOHN JACKSON. . . . . .New Orleans, Louisiana
DR. FRANKLIN KEVILLE . . . . . San Francisco, California
DR. HOMER KIRGIS . . . . . New Orleans, Louisiana
DR. ROBERT KNIGHTON. . . . . Detroit, Michigan
DR. BORJE LARASON. . . . . Uppsala, Sweden
DR. JOHN LAWRENCE . . . . . San Francisco, California
DR. PETER LEHMAN . . . . . .Vancouver, British Columbia
DR. RAEBURN LLEWELLYN . . . . . New Orleans, Louisiana
DR. WILLIAM LOUGHEED . . . . . Toronto, Ontario
DR. SALVATORE LUCIA . . . . . San Francisco, California
DR. FRANK LUSIGNAN. . . . . San Francisco, California
DR. LYMAN MAASS. . . . . .Sacramento, California
DR. DONALD MACRAE . . . . . .San Francisco, California
DR. WILLIAM NEWSOM . . . . . .San Francisco, California
DR. R. W. PORTER . . . . . Long Beach, California
DR. CARL RAND. . . . . .Los Angeles, California
DR. ROBERT RAND . . . . . .Los Angeles, California
DR. HARRY STEELMAN . . . . . Phoenix, Arizona
DR. JACK STERN. . . . . .Seattle, Washington
DR. W. EUGENE STERN . . . . . .Los Angeles, California
DR. JAMES ST. JOHN . . . . . .Santa Barbara, California
DR. EMIL THELEN. . . . . Monterey, California
DR. CORNELIUS TOBIAS . . . . . .San Francisco, California
DR. PHIL VOGEL. . . . . .Los Angeles, California
DR. BURTON WISE. . . . . .San Francisco, California
DR. JOSEPH WITT . . . . . .San Francisco, California

Past Meetings of The Academy

Hotel Netherland Plaza, Cincinnati Ohio. . . . . October 28-29, 1938
Roosevelt Hotel, New Orleans, Louisiana. . . . . October 27-29, 1939
Tudor Arms Hotel, Cleveland, Ohio. . . . . October 21-22, 1940
Ambassador Hotel, Los Angeles, California. . . . . November 11-15, 1941
The Palmer House, Chicago, Illinois . . . . . October 16-17, 1942
Hart Hotel, Battle Creek, Michigan . . . . . September 17-18, 1943
Ashford General Hospital,
White Sulphur Springs, West Virginia . . . . . September 7-9, 1944
The Homestead, Hot Springs, Virginia. . . . . September 9-11, 1946
Broadmoor Hotel, Colorado Springs, Colorado . . . . . October 9-11, 1947
Windsor Hotel, Montreal, Canada . . . . . September 20-28, 1948
Benson Hotel, Portland, Oregon. . . . . October 25-27, 1949
Mayo Clinic, Rochester, Minnesota. . . . . September 28-30, 1950
Shamrock Hotel, Houston, Texas. . . . . October 4-6, 1951
Waldorf Astoria Hotel, New York City . . . . September 29-October 1, 1952
Biltmore Hotel, Santa Barbara, California. . . . . October 12-14, 1953
Broadmoor Hotel, Colorado Springs, Colorado . . . . . October 21-23, 1954
The Homestead, Hot Springs, Virginia . . . . . October 27-29, 1955
Camelback Inn, Phoenix, Arizona . . . . . November 8-10, 1956
The Cloister, Sea Island, Georgia. . . . . November 11-13, 1957
The Royal York Hotel, Toronto, Ontario. . . . . November 6-8, 1958

PAST PRESIDENTS

Dean Echols	1938-39
Spencer Braden	1940
Joseph P. Evans	1941
Francis Murphey	1942
Frank H. Mayfield	1943
A. Earl Walker	1944
Barnes Woodhall	1946
William S. Keith	1947
Howard Brown	1948
John Raaf	1949
E. Harry Botterell	1950
Wallace B. Hamby	1951
Henry Schwartz	1952
J. Lawrence Pool	1953
Rupert Raney	1954
David L. Reeves	1955
Stuart N. Rowe	1956
Arthur Elvidge	1957
Jess D. Herrmann	1958

PAST VICE-PRESIDENTS

Francis Murphey	1941
William S. Keith	1942
John Raaf	1943
Rupert B. Raney	1944
Arthur Elvidge	1946
John Raaf	1947
Arthur Elvidge	1948
F. Keith Bradford	1949
David L. Reeves	1950
Henry Schwartz	1951
J. Lawrence Pool	1952
Rupert B. Raney	1953
David L. Reeves	1954
Stuart N. Rowe	1955
Jess D. Herrmann	1956
George Baker	1957
Samuel Snodgrass	1958

PAST SECRETARY-TREASURERS

Francis Murphey	1938-39-40
A. Earl Walker	1941-42-43
Theodore C. Erickson	1944-46-47
Wallace B. Hamby	1948-49-50
Theodore B. Rasmussen	1951-52-53
Eben Alexander, Jr.	1954-55-56-57
Robert L. McLaurin	1958-