Surgical Outcome of Anterior Circulation Aneurysm Clipping

Thesis

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محضر
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توطئة للحصول على درجة الماجستير / الدكتوراه
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تحت عنوان : باللغة الانجليزية : surgical outcome of anterior circulation aneurysm clipping

: باللغة العربية : حصيلة ما بعد الجراحي لتمدد الدراسة الحقنة الأمامية

بناء على موافقة الجامعة بتاريخ / / ٢٠٠ تم تشكيل لجنة الفحص والمناقشة للرسالة المذكورة أعلاه على النحو التالي :-

P.1 ... الجوهري محمد الجوهري ... أستاذ ورئيس قسم جراحة الأعصاب ... عن المشرفين

P.2 ... أحمد صبحي منصور ... أستاذ جراحة الأعصاب ... ممتحن داخلي

P.3 ... حسام حسن الحسيني خليل ... أستاذ جراحة الأعصاب بجامعة ... ممتحن خارجي

بعد فحص الرسالة بواسطة كل عضو منفردا وكتابة تقارير منفردة لكل منهم انعقدت اللجنة مجتمعة في يوم ..... بتاريخ / / ٢٠٠ بقسم جراحة P. مدرج مركز الجراحة بكلية الطب – جامعة القاهرة وذلك لمناقشة الطالب في جلسة علنية في موضوع الرسالة والنتائج التي توصل اليها وكذلك الأسس العلمية التي قام عليها البحث .

قرار اللجنة : قبلت الرسالة

توقيعات أعضاء اللجنة :-

المشرف الممتحن

عصام

الممتحن الداخلي

الممتحن الخارجي

بسم الله الرحمن الرحيم

"قالوا سبحانك لا علم لنا إلا ما
علمتنا إنك أنت العليم الحكيم"

صدق الله العظيم
البقرة ٣٢

TO

MY FAMILY

AND

MY WIFE

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Contents

List of Abbreviations

C.T / CT	Computed Tomography
ACoA	Anterior Communicating
P.Comm	Posterior Communicating
MCA	Middle Cerebral Artery
ACA	Anterior Cerebral Artery
ICA	Internal Carotid Artery
HCP	Hydrocephalus
ICP	Intracranial Pressure
Pts	Patients
MRI	Magnetic Resonance Imaging
NECT	Non-contrast Enhancing CT
DIND	Delayed Ischemic Neurologic Deficit
SAH	Subarachnoid Hemorrhage
CVS	Cerebral Vasospasm
IVC	Intraventricular Catheter
ONP	Oculomotor Nerve palsy
UIA	Unruptured Intracranial Aneurysm
ISUIA	International Study Group of Unruptured Intracranial Aneurysms
HHH	hypervolemic-hypertensive-hemodilution

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ABSTRACT

In this study we have discussed the outcome following surgical clipping of various anterior circulation aneurysms. We have elaborated the major complications secondary to the subarachnoid hemorrhage, the result of rupture of the aneurysms.

The final conclusions for this study are; surgical clipping still has the upper hand as regards the sure, permanent and complete occlusion of the aneurysm. It gives the advantage of approaching other criteria that might affect the outcome, such as lamina terminalis fenestration n order to decrease the incidence of chronic hydrocephalus or the need for ventriculoperitoneal shunt in cases who already presented with hydrocephalus. It also gives the advantage of clearing some of the subarachnoid blood that in certain studies proved to decrease the risk of vasospasm. In older patients or in patients in poor clinical conditions with associated co-morbidities, endovascular management appears to be superior. The management of the serious vasospasm appears to be the standard use of the calcium channel blocker, nimodipine, once the diagnosis of subarachnoid hemorrhage was done.

Keywords:

Aneurysm

Clipping

Ventriculoperitoneal shunt

Introduction And Aim Of The Study

Introduction and aim of the study

Aneurysms of the anterior circulation represent more than 85% of all intracranial and arise from the internal carotid artery (ICA) or its two terminal branches, the anterior cerebral artery and middle cerebral artery (MCA). At present, surgical treatment is the most widely applied method for securing an aneurysm. The surgical options available to approaching aneurysms of the anterior circulation have been affected by advances in microsurgical techniques, a better understanding of microsurgical anatomy, and skull base approaches that minimize brain retraction with concomitant increase in surgical exposure. These all have led to an overall decline in rates of morbidity and mortality (**IIhara et al, 2004).**

In the past several decades, management of aneurismal SAH has significantly changed. Advances in microsurgical, endovascular, and overall medical treatment have modified the incidences and causes of morbidity and death (**Ogungbo B et al, 2001).** Rebleeding and vasospasm have been reported to be the leading causes of unfavorable outcome (**Proust F et al, 1995)**. More recently authors have stated that early surgery combined with administration of calcium channel blocking agents almost eliminates the risk of recurrent bleeding and reduces the chance of a DIND. Nevertheless, many patients with aneurismal SAH still die and not all survivors are neurologically intact (**Ogungbo B et al, 2001).**

The diagnosis of aneurismal SAH was based on the following factors: 1) clinical signs and symptoms; 2) positive findings on a CT scan or in fluid obtained from a lumbar puncture; and 3) findings on angiography or, in rare cases, MR angiography, or an intraoperative diagnosis in cases in which the patient's clinical presentation stressed the need for urgent surgical treatment **(McLaughlin N and Bojanowski MW, 2004).** All cerebral angiography studies performed include at least anteroposterior, lateral, and oblique views. All SAHs received Hunt and Hess grades at patient admission and again preoperatively **(Hunt WE, Hess RM, 1968).** The patient's functional health was assessed between 2 and 3 months post-SAH at a follow-up appointment. The Glasgow Outcome Scale (GOS) is used for this assessment; good recovery and moderate disability were jointly accepted as a favorable outcome, and severe disability, vegetative survival, and death were considered a poor outcome **(Jennett B and Bond M., 1975).**

Aim of the work:

1. Review of literature and recent publications regarding outcome after surgery for anterior circulation aneurysms.
2. To evaluate the surgical outcome of clipping of anterior circulation aneurysms in Cairo University Hospitals.
3. Determine the incidence of various surgical complications.
4. Defining the good and bad prognostic criteria for outcome.

Review Of Literature

Review of Literature

ETIOLOGY

Saccular Aneurysms:

Saccular, or berry aneurysms are the most common form of aneurysms and are the most often responsible for aneurismal subarachnoid hemorrhage. Saccular aneurysms may arise from defects in the muscular layer of cerebral arteries that occur at vessel bifurcation and from degenerative changes that damage the internal elastic membrane, resulting in weakness of the vessel wall. They usually occur on the first or second order arterial branches of the vessel emanating from the circle of Willis. Evidence suggests that both genetic and environmental factors contribute to the development of saccular aneurysms. The evidence that genetic factors are important comes from the documented association of intracranial aneurysms with heritable connective tissue disorders such as autosomal dominant polycystic kidney disease, Ehlers-Danlos' syndrome type IV, neurofibromatosis type I, and Marfan's syndrome. The familial occurrences of intracranial aneurysms also point to a role for genetic factors. In those patients who have a first-degree relative with an aneurismal SAH, the risk of a ruptured aneurysm is four times higher than the risk in the general population. A role for acquired factors in the pathogenesis of saccular aneurysms is suggested by the mean age of 50 for patients with aneurismal SAH, and the increased incidence of hemorrhage occurring with age. Cigarette smoking is a risk factor in all population studies and a role of systemic hypertension, although not as strong as that of cigarette smoking, in the cause of aneurysm formation appears likely **(Weir, 1985).**