SURGICAL MANAGEMENT
OF BRAIN ABSCESS BY ASPIRATION

THESIS

SUBMITTED FOR

PARTIAL FULFILMENT

OF M.D. IN NEUROSURGERY

BY

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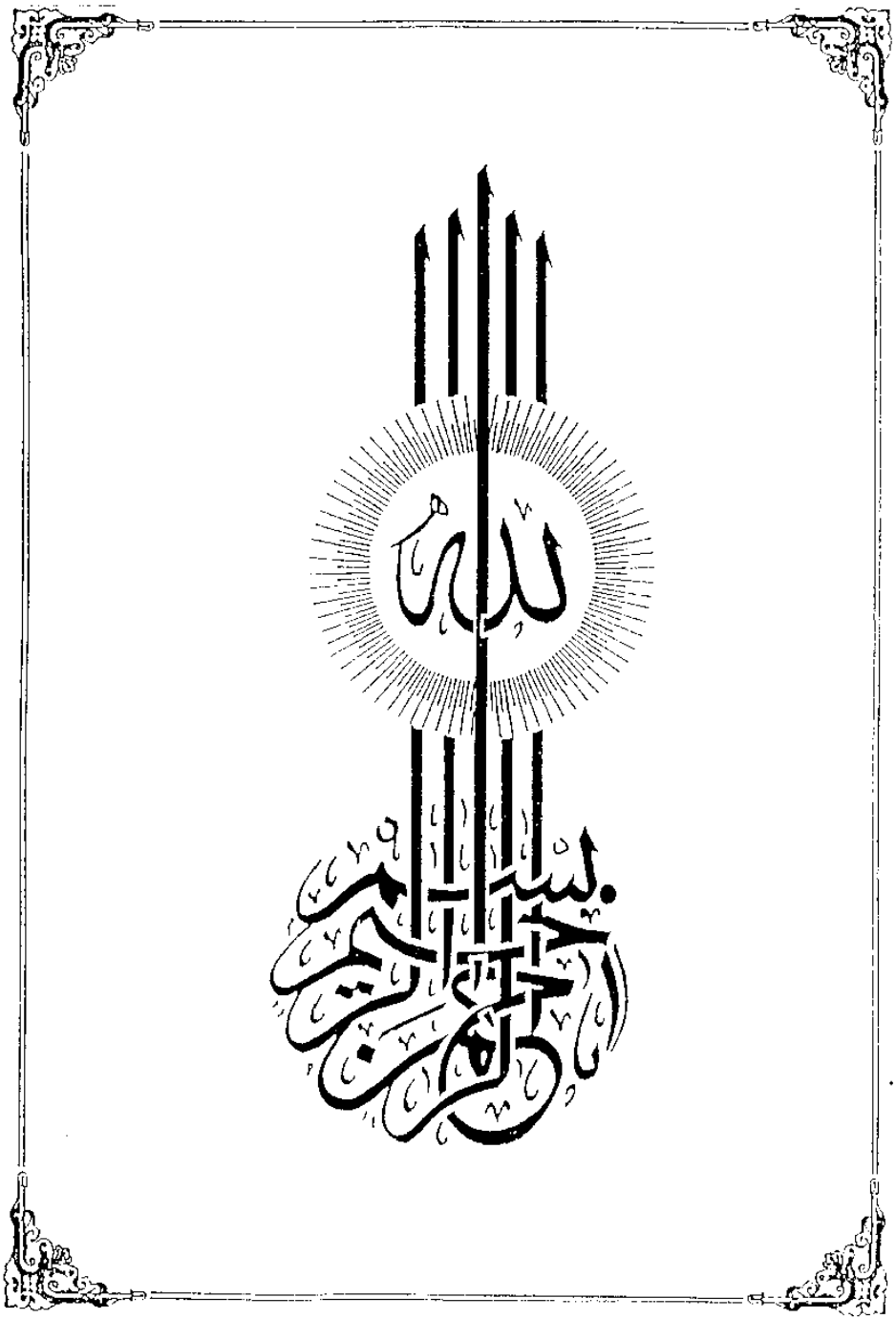

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Dr. ADEL NABIH

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INTRODUCTION AND AIM OF THE WORK

INTRODUCTION

Definition

A brain abscess is alccalized suppurative process within the brain parenchyma caused by a wide variety of bacteria, fungi and protozoa. ***[Beller et al., 1973].***

The successful neurosurgical management of brain abscess is over 200 years old, Morand is credited, with being the first neurosurgeon to successfully drain brain abscess in this account (1788).

Despite advances in diagnosis and Antibiotics therapy the incidence of brain abscess does not appear to be changing and in fact is increasing ***Bell and Mc Coromick 1981].***

In 1929, King introduced aprocedure called "unroofing" of the abscess, which involved marsupilization, in which the abscess capsule was sutured to the galea.

Kahn, in 1938, Extended the concept of simple aspiration and started in stilling antibiotics and colloidal Thorium Dioxide which outlined the abscess cavity and allowed abscess resolusion to be followed by conventional radiography.

On the other hand Vincent, in (1963) advocated total excision of the brain abscess.

With C.T. scan the stage of evaluation of a brain abscess can be determined with reasonable accuracy by serial scans after contrast infusion *[Britt and Enzman 1983]*

On the bases of C.T. appearance, criteria are evolving which determine the best method of treatment for a given brain abscess.

The presenting symptoms and Neurological findings in patients with brain abscess depend on many factors (Location, Size, and Number of Lesions) Virulence of organisms, degree of the surrounding cereberal oedema, and host response to infection. *[Beller et al., 1973]*.

AIM OF THE WORK

Study of cases of brain abscess which were being admitted and treated by aspiration in the neurosurgery department Ain Shams University Hospitals from (1988-1992).

Evaluation of the post operative course and the results of brain abscess by aspiration

Methodology :

The study will include.

1. Complete clinical and neurological examination
2. Routine laboratory investigations.
3. Radiological examination including plain x-ray of the skull and C.T. scan
4. Treatment of these cases by aspiration
5. Post-operative evaluation and assesment of results of the operation.

REVIEW OF LITERATURE

PATHOLOGY OF BRAIN ABSCESS

PATHOLOGY OF BRAIN ABSCESS

I. Sources of infection and mode of spread:

1. Infection of paranasal Sinuses:

Frontal, ethmoidal, sphenoidal sinusitis can cause brain abscess by retrograde thrombophlebitis via valveless veins of diploe of skull bones. It is commonly located in frontal or temporal lobes, usually asingle superficial abscess found near the source of infection.

Morgan, 1973 reported that 10% of his series of brain abscesses were due to sinusitis. In the same year samson stated that "paranasal sinus disease seems to be a more frequent source as contrasted to mastoid infections "in his series, 8 of 37 brain abscesses were proved to be due to otitic or paranasal sinus infection. ***[Samson et al., 1973]***.

In the series reported by ***Sorour, 1977*** only 5% of the cases were secondary to sinesitis. ***[Sorour et al.,1977]***.

Chun, 1986found 20% of his series of brain abcess were due to sinusitis among which infection of the maxillary sinus was the most common source ***[Chun et al., 1986]***.

In the recent study by ***Mampalam, 1988*** he found that the most common predesposing factor (19 out of 102 patients) was an adjacent localized cranial infection. ***[Mampalam, et al., 1988]***.

According to ***Britt, 1985*** sinusitis can result in brain abscess in some locations according to source as follows:

- Frontal sinusitis: --> anterior or inferior frontal lobe abscess or subdural empyema.
- Sphenoid Sinusitis: --> frontal or temporal lobe abcess.
- Maxillary Sinusitis: --> Temporal lobe abcess.
- Ethmoid Sinusitis: --> Temporal lobe abcess.

[Britt, et al.,1985]

2. Infection of middle ear and mastoid air cells:

Otitis media and mastoiditis are still responsible for a good percentage of cereberal and cerebellar abscesses.

The route of Extension of infection is via the tegmen or petrous portion of temporal bone; less commonly extension of infection is via translabyrinthin space by spread through the oval or round window into the vestibular or cochlear aqueduct into the internal auditory canal and hence to Brain, infection can also occur through retrograde septic thrombophielbitis in an emissary vein in the temporal bone.

Skull defects play arole in spread of infection from ear and mastoid air cells.

The locations of abscesses caused by chronic otitis media is commonly in temporal lobe rather than cerebellum but chronic mastoiditis gives rise to brain abscess in cerebellum or temporal lobe in the ratio ranging from 3:2 up to 4:1.

Cerebellar abscesses are mainly secondary to chronic mastoiditis or otitis media. The % of these predesposing factors among 47 cerebellar abscesses collected by ***Shaw , 1975 was 93% [Shaw et al., 1975].***

This fact was proved in the series (10 cases) of cerebellar abscesses reviewed by ***Salama, 1984,*** in which 8 patients had pre-exisisting infection in the ear or mastoid air cells. ***[Salama, et al.,1984].***

In 1979 calabet found 8 brain abscesses as acomplication of ENT and oral infections among 35 cases collected. ***[Calabet et al., 1979].***

Otitis media and mastoiditis were responsible for 16% of series reported by ***Chun, 1986*** he stated that " The incidence of abscesses due to otitic infections has decreased from aproximately 35% to 20% in current Series

Since 1963: and he attributed this to enhanced recongnition, early antibiotic therapy, and more aggressive management of ear infections. ***[Chun, et al., 1986]***.

3. Metastatic brain abscesses:

These abscesses arise by haematogenous spread of infection from distant septic foci, the common primary sites of infection are:

- Chronic pulmonary suppuration (empyema, bronchiactesis, lung abscess and pneumonia)
- Distant osteomylitis.
- Bacterial endocorditis or infected prosthetic devices.
- Septicaemia (I.V. drug users).
- Miscellanous causes: Diverticulitis, furncles or skin pustules... etc.

Although brain abscesses associating congenital heart disease (not due to bacterial endocarditis) are haematogenous in origin but this is considered aspecial separate entity. Other Noticeable associations are: cystic fibrosis, pulmonary angiomatous malformations and rarely hepatopulmonary amoebiasis.

The commonest cause of brain abscess in the series of ***Kray Enbuhl, 1967*** was chest infection. This is still supported by some authers ***[Krayenbuhl, et al., 1967]***.