

A study of 74 cases of brain Abscess

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Summary:

Background: Brain abscess is collection of pus in the brain parrynchima surrounded by a true capsule. Usually diagnosed by CT & MRI, & treated surgically by drainage by burr hole, or excision.

Objective: evaluate our work with brain abscess.

Patient& method: 74 Patients collected in the specialized surgical hospital neuro-surgical department, from Jan. 1995 till Jan. 2005 treated surgically, all cases fully evaluated clinically & radiologically & then evaluation of the surgical procedure.

Results: there is a slight male predominance & prevalence more in the 1st 2decades of life mostly in children with cong. heart disease, headache was the most common presenting feature, with other signs of infection diagnosis was mostly by CT scan, all cases were managed surgically & the out come is compared other studies.

Conclusion: Brain abscess a relatively common disease, each case should be managed individually & depending on surgeon experience.

Keywords: Brain abscess, CT scan, burr hole, craniotomy.

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Introduction:

Definition: A brain abscess is a collection of pus in the brain parrynchima surrounded by a true capsule. (1) (2).A brain abscess is initiated when microorganisms are introduced in the cerebral tissues as a result of trauma, contiguous infection or haematogenous dissemination (3).The microbiology of brain abscess most series show predominance of anaerobes as Bacteroids SPP. (B. Fragilis & B. melanogenicus) and anaerobes streptococci (peptococcus), fusobacterium SPP., veinolla SPP., Propioni bacterium SPP. And Actinomyces, Aerobic microorganism associated with brain abscess include staphylococcus, streptococcus, enterobacterraceae & haemophilus, pneumococci,. (4).The stages of brain abscess formation are early cerebritis (1-3 days) late cerebritis (4-9 days) early encapsulation (10 – 13 days) late encapsulation (14 days on word) (1,2,5) the clinical presentation include: features of intra cranial space occupying lesion, features of intracranial infection & features of underlying cause (3,6) the diagnosis is by CT or MRI with contrast. (6, 7)The management: include. surgical drainage by burrhole or excision (craniotomy), heavy antibiotics, steroids, general measures & treating the underlying cause. (2, 3, 4, 5)

Patient & method:

A retrospective study of 74 patients treated surgically in the neurosurgical department of the specialized surgical hospital from Jan. 1995 till Jan. 2005 all patients fully evaluated including the source of abscess, Age, Gender, clinical features, Radiological diagnosis surgical interference & outcome, & the results compared with other studies

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Table (1): underlying cause.

Underlying cause	No.	%
Congenital heart disease	23	31%
Chronic otitis media	12	16.2%
Chronic chest disease	10	13.5%
Shell injury in the brain	8	10.8%
Sinusitis	6	8.1%
Osteomyelitis	4	5.4%
Immuno compromised	3	4%
No obvious underlying cause	8	10.8%

Table (2): clinical presentation.

Symptoms & signs	No.	%
Headache	68	91.8%
Nausea & vomiting	42	65.7
Fever	41	55.4%
Lastitude	40	54%
Papalloedema	31	41.8%
Alteration of consciousness	22	29.7%
Dysphasia	12	16.2%
Disarthria	8	10.8%
Hemiplegia	4	5.4%
Hemiparesis	16	21.6%
Meningism	22	29.7%
Ataxia	5	6.7%
Others	18	24.3%

The total number is above 100% as the patient has usually more than one symptom or sign.

Table (3): the causative organism

Organism by C/S	No.	%
Bacteroids	22	29.7%
Staphylococcus	21	28.3%
Streptococcus	9	12.1%
Haemophilus	8	10.8%
Pneumococci	7	9.4%
Negative culture & sub	7	9.4%

culture		
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Table (4): the surgical procedure

Type of surgery	No.	%	Total
Burr hole aspiration	Single. 43	58.1%	70.2%
	multiple 9	12.1%	
Craniotomy & excision	16	21.6%	21.6%
Craniectomy & excision	5.4	5.4%	5.4%
Burr hole followed by craniotomy & excision	2	2.7%	2.7%

Table (5): the out come

Type of surgery	Good out come	%	Crippled	%	Death	%
Burr hole aspiration	Single:33	76.	8	18.	2	4.6
	Multiple: 5	6 55. 5	2	6 22. 2	2	22. 2
Craniotomy & excision	11	68. 7	2	12. 5	3	18. 7
Craniectomy & excision	3	75	/	/	1	25
Burr hole followed by craniotomy & excision	1	50	1	50	/	/
					8	10. 8

The percentage is to the type of procedure & not the total number of patients

Results & Discussion:

The study show slight male predominance which does not go with most studies (5,6) which show almost equal sex distribution may be this is due to the trauma "shell injury" which is about 10.8% mostly affecting males, around 3rd of the patients were in the 1st 2 decades of life mostly due to congenital heart disease which goes with most studies (5-6,7). The underlying cause were mostly around 1/3 of the patients congenital heart disease followed by chronic oddities media also which also fit with most studies in this subject (5,6,7)

The presenting symptoms were variable headache as other studies (3) was present in more than 90% of patient, with other features of infection as nausea vomiting & lassitude, with different focal signs.

Most cases were diagnosed by CT alone & the commonest was the temporal lobe which goes with most studies (2,3,4,5). The responsible organism bacteroides followed by staphylococcus which also goes with most study (6,7) around 10% of cases the of ending microorganism could not be identified mostly due to the use of antibiotics prior to the diagnosis of brain abscess. The type of surgery depends on the patients condition weather he can tolerate craniotomy or burr hole aspiration. Burr hole aspiration was done in 70% of the patients 12.1%

needed repeated aspiration. for recurrence, those with post fossa abscess were all managed by craniectomy & excision. 21% of patients were managed by craniotomy & excision as the general condition permits & surgeon preference. 2 patients managed by burrhole aspiration to start with later needed craniotomy for failure of procedure. Regarding the out come with burr hole aspiration those who managed by single aspirat 76.6 had good prognosis and 4.6 mortality, while craniotomy 68.7% good prognosis craniectomy 75% good prognosis, burr hole followed by craniotomy carries bad prognosis as obviously we are dealing with complicated cases, The total mortality is 10.8, Our results are regarded as good results compared with other studies. Alderson et al show a mortality of 10% (8) Mampalam and Rosen blum reported 41% mortality & 9% mortality by same people in a study 10 years later (9). Dyste et al show mortality of 8-12% (10)

Conclusion:

We think that the general condition of the patient, time of surgery, degree of brain damage are the crucial factors for the final outcome rather than the type of surgery.

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