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Sociodemographic Profile of Encephalocele Patients in Department of Surgery, Neurosurgery Division, Dr. Mohammad Hoesin General Hospital From 2015-2019: A Retrospective Study

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Abstract

Background: Encephalocele is a collection of congenital diseases characterized by protrusion of brain tissue with or without protrusion of the meninges through a defect in the skull.[1] Incidence of encephalocele is found in 1 in 35.000 live births in North America and Europe. Five Types of encephalocele based on anatomical location have different patterns, where in western countries it is reported that it is more often located in the occipital area, whereas in Southeast Asia the frontoetmoidal type is more frequently reported. geographic.[3] On this basis, this study was carried out.

Methods: This research is a retrospective study with a descriptive design. Data taken from January 1st, 2015 to December 31st, 2019.

Results: There were 27 encephalocele patients with complete medical record data with the most distribution being women, age range 1 month to 1 year, work of self-employed parents, ethnic Sumatran parents, region of occipitocervical lesions, onset of action 1 month to 1 year, and the most complications. is a cele rupture

Conclusion: The level of parental awareness and appropriate management of all medical personnel determine the prognosis of encephalocele sufferers.

Keywords : encephalocele, neurosurgery, retrospective

1. Introduction

Encephalocele is a collection of congenital diseases characterized by protrusion of brain tissue with or without protrusion of the meninges through a defect in the skull.[1] Encephalocele is less common (15-20%) than other types of neural tube defects, with an estimated prevalence of 0.8-5.6 per 10.000 live births.[1-3] The prevalence of this condition is less common in developed countries, and is often reported in the Southeast Asia region, found correlations with race and geography as well as economic levels have also been reported.[4] Incidence of encephalocele was found 1 of 35.000 live births in North America and Europe. 5 A study at the Neurosurgery Clinic, Dr. Soetomo, Surabaya in 2010-2012 recorded 52 patients with encephalocele, where more was reported in children aged less than 3.5 years,

The type of encephalocele based on anatomical location has a different pattern, where in western countries it is reported that it is more often located in the occipital area, whereas in Southeast Asia the frontoetmoidal type is more frequently reported.[3,6] Research in Surabaya in 2010-2012 reported the type of encephalocele that was most often found. are nasofrontal and nasoorbital. However, the temporal type encephalocele is also increasingly being studied, especially in western countries because it is thought to be one of the etiologies or epileptogenic factors in patients with refractory seizures.

The exact etiology of this disease is complex, and the associated risk factors have not been widely studied. Several studies have shown an association between several risk factors such as hyperthermia, aflatoxins, teratogens, infections during pregnancy, genetics, and nutritional deficiencies, especially folic acid, or other nutritional factors.[1,11] In addition, specific prenatal screening of encephaloceles during pregnancy is also has not been done, thus contributing to the higher prevalence of cases with this condition than in western countries

Corrective encephalocele surgery is progressing more and more so as to improve morbidity and mortality, especially in developed countries followed by modern postoperative neonatal imaging and care.[1] A systematic review even suggests choosing an endoscopic modality over open surgery of the anterior encephalocele due to complications (meningitis, sepsis) and significantly lower perioperative mortality.[12] Studies on the surgical management of encephalocele, especially the frontoetmoidal type in Indonesia have been reported by Arifin et al. was 2 hours (range 30 minutes-3 hours), and two patients (0.5%) required postoperative blood transfusion.In this study, it was also reported that the average length of stay was 5 days (range 4-7 days), with a complication rate reaching 12.5%, mostly due to leakage of cerebrospinal fluid (CSF) and wound dehiscence.

Epidemiological studies on encephaloceles are still very limited in the literature from Indonesia, although the incidence is quite high in terms of economic, racial and geographic conditions.3 Given that encephalocele is a disease that needs to be treated early and there is no complete data on encephalocele in South Sumatra, then from the researchers think this research needs to be done.

2. Methods

This research is a retrospective study with a descriptive design. The data used comes from medical records. Data taken from January 1st, 2015 to December 31st, 2019.

The target population in this study were all cases with encephalocele in RSMH Palembang. The affordable population was all cases with encephalocele treated by the Department of Neurosurgery, Sub-Division of Neurosurgery RSMH Palembang in the period January 1st, 2015 to December 31st, 2019.The sample in this study was the entire population that met the inclusion criteria.

The inclusion criteria of this study were all encephalocele patients according to variables, the exclusion criteria for this study were patients with incomplete medical records.

The variables of this study included gender, age, occupation of the parents, race, region of the lesion, onset of surgery, and preoperative complications.

Descriptive analysis is presented in the form of a pie chart for all data obtained in this study.

3. Results

Research has been carried out at the Department of Surgery, Sub Division of Neurosurgery RSMH Palembang and obtained 27 samples that met the inclusion and exclusion criteria.

Demographic characteristics

The distribution of samples based on gender was obtained as many as 4 men and 23 women. Based on the age distribution, it was found that the youngest age of patients with encephalocele who went to the sub-division of neurosurgery was 0 days, while the oldest age was 21 years. The distribution based on age was 7 patients in the age group less than 1 week, 5 patients in the 1 week to 1 month age group, 10 patients in the 1 month to 1 year age group, 5 patients in the 1 year age group. The distribution of ages ≥ 3.5 years was as many as 5 patients (18%) and <3.5 years as many as 22 patients (82%). The distribution based on parents' occupation shows that the distribution of elderly patients is 1 civil servant patient (PNS), 12 self-employed patients, 11 farmer patients, 3 labor patients.

Clinical characteristics

Based on the region of the lesion, it was found that the location of the most encephalocele lesions was occipitocervical with 12 cases, synsipital 8 cases, temporal 4 cases and parietal 3 cases. Based on the onset of action, it was noted that 7 patients underwent surgery at <1 week of age, 7 patients at 1 week to 1 month of age, 10 patients underwent surgery at 1 month to 1 year of age, 3 patients underwent surgery at the age of> 1 year. Based on pre operative complications, it was found that 3 patients had seizures, 8 patients with hydrocephalus, 1 patient with meningitis, 11 patients with cele rupture, and 4 patients without complications.

Table 1. Demographic characteristics of research subjects

Characteristics		**N**	**%**
Gender	Man	4	
	Women	23	
Age	<1 week	7	
	1 week - 1 month	5	
	1 month - 1 year	10	
	> 1 year	5	
Parents' job	Civil servants	1	
	Entrepreneur	12	
	Farmer	11	
	Laborer	3	
Tribe	Sumatra	23	
	Java	4	
Region of Lesions	occipitocervical	12	
	syncipital	8	
	Temporal	4	
	parietal	3	
Action onset	<1 week	7	
	1 week - 1 month	7	
	1 month - 1 year	11	
	> 1 year	3	
Complications	Seizures	3	
	Hydrocephalus	8	
	Meningitis	1	
	Cele rupture	11	
	Without complications	4	

4. Discussion

The results of this study are not in accordance with the study of Ilmi et al. 3, which stated that men are more dominant in encephalocele cases. The results of a study conducted by Nagpal et al. 35 and Arifin et al. 13, also found that men were more frequently affected by encephaloceles.

The results of this study are in accordance with the research of Laharwal et al. 36, it was found that the incidence of female patients was more than male patients with a male to female ratio of 0.8:1.

In this study, the most encephalocele patients were found in the 0-3.5 year age group. Previous studies have also shown that encephalocele patients in the younger age group are more common than older ones.13 This may be because encephalocele is a congenital abnormality whose signs have appeared at birth with varying sizes so that in children the size of the hernia sac is large since birth. can be immediately recognized and examined. Older patients were also reported. This may be because in some patients it shows an increase in size with age, so that the signs of encephalocele can be recognized after increasing age. Although some patients also stated that there was no increase in the size of the hernia sac as they got older

In this study, it was found that the majority of the occupation of elderly patients were entrepreneurs and farmers with uncertain income. This may occur because the encephalocele is closely related to the socioeconomic conditions of society. In several previous studies, the incidence of encephalocele in people with low economies was found to be higher than those with middle and upper economies. confirms that this disorder is strongly correlated with poverty.[4] Several studies suggest that encephalocele is closely related to the nutritional status of pregnant women and children. Neural tube defects are more common in malnourished pregnant women,

The results of this study were dominated by elderly patients who came from the Sumatran tribe, this is possible because the sample taken from a hospital based in South Sumatra, where the people of South Sumatra are dominated by the Sumatran tribe.

The results of this study are inconsistent with the research of Arifin et al.[13] in Surabaya, which showed that syncipital cases were the most dominant.

Several studies suggest that the type of encephalocele based on the location of the disorder is influenced by ethnicity and geography of the patient. Hoving[39] mentioned that in the population of America, Europe and the western hemisphere, there are many basal type encephaloceles.[39] Frontoetmoidal encephalocele is the type most often found in the population of Asia, especially Southeast Asia. Frontoetmoidal encephalocele can be divided into several classifications, some of which

are nasofrontal encephalocele, nasoorbita, and nasoetmoidal. The most common cases are frontoetmoidal.[16] In Indonesia, according to its geographic location in Southeast Asia, syncipital encephaloceles have a high prevalence, ranging from 1: 5000. Approximately 80% of all encephalocele cases, are of the frontoetmoidal type. But other types have also been reported

This is not in accordance with the results of the study by Rifi et al.[5] which stated that the mean age of patients at the time of surgery was 14 months.

The results of this study are not in accordance with the research of Rehman et al.40, who stated that the most preoperative complications were hydrocephalus.

5. Conclusion

The level of parental awareness and appropriate management of all medical personnel determine the prognosis of encephalocele sufferers.

6. References

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