

Prevalence of Early Post-Operative Complications in Patients Undergoing Surgical Treatment for Meningomyelocele

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ABSTRACT

Objective: To determine the prevalence of early postoperative complications in patients undergoing surgical treatment for meningomyelocele.

Study Design: Descriptive study

Place & Duration: Department of Neurosurgery, Saidu Teaching Hospital, Saidu Sharif, Swat for duration of three years from November 2017 to October 2020.

Methods: Total one hundred and thirty six patients of both genders presented with meningomycele were included in this study. Patients' ages were ranging from 5 to 120 days. All the patients were undergoing surgical treatment for meningomyelocele. Early post-operative complications were recorded after surgery

Results: There were 76 (55.88%) males and 60 (44.12%) females. Forty (29.41%) patients were ages <1 month, 59 (43.38%) patients were ages 1 to 2 months 37 (27.21%) were ages above 2 months. Majority of patients 70 (51.47%) had defect size <5 cm. Post-operative complications such as surgical site infection, pyrexia, hydrocephalus and cerebrospinal fluid leakage in 20 (14.71%), 115 (84.56%), 29 (21.32%) and 33 (24.26%) patients respectively.

Conclusion: Early and accurate diagnosis and better management may reduce the complications rate

Keywords: Prevalence, Complications, Meningomyelocele

INTRODUCTION

Disabilities in humans are one of the most significant burdens of disease on our society today. According to the 'World Report on Disability,' there are more than one billion people worldwide who have a variety of disabilities, accounting for more than 15 percent of the world's population, according to the report [1]. Neural tube defects are among the most common types of congenital birth defects, and they are associated with a significant number of physical, mental, and social disabilities in children and adolescents during their early years of life. However, the incidence of these anomalies is extremely high in the developing world, while it has reached a steady state in the developed world where there has been no evidence of a decrease despite extensive research into their prevention [2-4].

Because of their debilitating nature, these anomalies rank first among all structural malformations in terms of their impact on the functioning of individuals, families, and communities as a whole [5, 6]. Families from lower socioeconomic status, particularly those with poor food quality and hygiene, are the most severely affected [7].

Myelomeningocele (MMC) is the most common of the central nervous system defects, occurring in up to 71 percent of newborns with anomalies. MMC is the most common of the central nervous system defects, occurring in up to 31 percent of newborns with anomalies. 8 According to reports, the incidence ranges between 3 and 6 per 1000 live births [8, 9].

Current surgical guidelines recommend that the myelomeningocele defect be repaired as soon as possible (within 48 hours) and that the hydrocephalus be shunted as soon as possible if it is present concurrently. In most cases, the myelomeningocele defect is repaired within 24 to 48 hours of birth, and the infant is closely monitored for the

development of signs of hydrocephalus in the future. Among the remaining patients, hydrocephalus can develop later in life or at any time after birth in more than 70% of infants [10]. Khan et al. conducted a study into the short-term outcome of surgical management of patients with spina bifida, and they discovered a number of complications. After surgery, almost all of the patients experienced postoperative pyrexia. Wound infection occurred in approximately 9 percent of the patients, with cerebrospinal fluid leakage through the wound occurring in 30 percent. Twenty-one percent of the patients developed hydrocephalus [11].

The current study was carried out in order to determine the occurrence of early post-operative complications in patients who were undergoing surgical treatment for meningomycele. It also aimed to provide better treatment and reduce the complication rate by examining the occurrence of early post-operative complications.

METHODS

The descriptive study was conducted at Department of Neurosurgery, Saidu Teaching Hospital, Saidu Sharif, Swat for duration of three years from November 2017 to October 2020. In this study total 136 patients of both genders who were clinically diagnosed to have meningomycele were included. Patients' ages were ranging from 5 to 120 days. After taking informed consent from the patient's guardian or parents, detailed medical history including age, sex and size of defect were examined. Patients with previous history of any surgery, other severe morbidities and those whom were not interested were excluded from this study.

All the included patients were received surgical treatment for the meningomycele. All the surgeries were done by the well experienced surgeons. After surgery,

post-operative complications such as surgical site infection, post-operative pyrexia, cerebrospinal fluid leakage and hydrocephalus were recorded.

All the data was analyzed using SPSS 19. Where p-value <0.05 was considered significant.

RESULTS

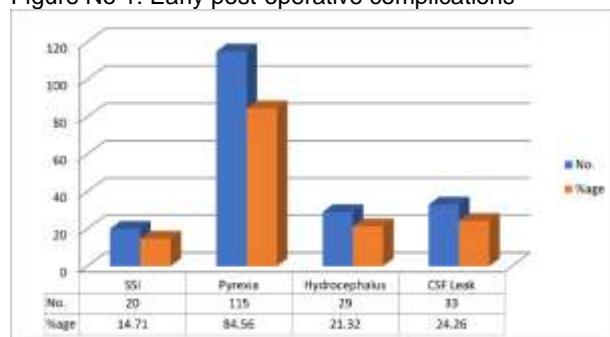
Out of 136 patients 76 (55.88%) patients were male while 44.12% patients were females. 40 (29.41%) patients were ages <1 month, 59 (43.38%) patients were ages 1 to 3 months 37 (27.21%) were ages above 3 months. Defect sizes were recorded as <5cm, 5 to 10cm and above 10cm in 70 (51.47%), 52 (38.24%) and 14 (10.29%) patients respectively. (Table 1).

Table 1: Clinical findings of all the patients

Characteristics	No.	%
Gender		
Male	76	55.88
Female	60	44.12
Age (months)		
<1	40	29.41
1 -3	59	43.38
>3	37	27.21
Trauma size (cm)		
< 5	70	51.47
5 – 10	52	38.24
> 10	14	10.29

Surgical site infections were noticed in 20 (14.71%) patients. Post-operative pyrexia was seen in 115 (84.56%) patients, postoperative hydrocephalus found in 29 (21.32%) patients and cerebrospinal fluid leakage was observed in 33 (24.26%) patients. (Figure 1)

Figure No 1: Early post-operative complications



Mean hospital stay was 10.2±4.35 days. According to the age the distribution of complications were examined, Patients with ages <1, 1 to 3 and above 3 month surgical site infection was found in 6, 10 and 4 patients, Post-operative pyrexia was found in 40, 65 and 10 patients, post-operative hydrocephalus in 10, 15 and 4 patients and CSF leakage found in 8, 22 and 3 patients respectively (Tables 2).

Table 3: Distribution of complications according to age

Complications	<1 month	1 to 3 months	>3months
SSI (n=20)	6	10	4
Pyrexia (n=115)	40	65	10
Hydrocephalus (n=29)	10	15	4
CSF Leakage (n=33)	8	22	3

DISCUSSION

Neural tube defects are one of the most common congenital birth defects resulting in a significant number of physical, mental and social disabilities in the earlier years of life. In the present study, 55.88% patients were males while 44.12% patients were females. A study conducted by Alamgir¹¹ reported 56.4% male and 43.6% were females. Some other studies shows similarity to our study in which male patients population was high as compared to females.^{12,13}

This study shows that majority of patients were age between 15 to 90 days 72.79%. These results shows similarity to other study conducted regarding meningocele repair, in which they reported that maximum number of patients were ages 5 to 90 days.¹⁴

In our study we found that 51.47% patients had meningocele size was <5cm and 38.24% patients had size 5 to 10cm and 10.29% patients had sizes >10 cm. These results were similar to some other studies in which maximum patients had size of defect <5cm.¹⁵

Early postoperative complications such as surgical site infection were found in 20 of our study participants (14.71 %). In 2012, a research on meningocele found that 11.4% of patients had wound infection. 16 Following myelomeningocele closure in 2015, a study found that of the 91 neonates involved, 18 acquired meningitis/shunt infection (16.4%) and 12 developed surgical site infection (11%) as a result of the procedure. The length of the operation or the size of the incision did not seem to affect the rate of infection in the deep surgical wound. When it came to meningitis and cerebrospinal fluid leaking (r = 0.377), there was a transitory but vitally favourable correlation. This was also true for hospital stay and flap transposition (r = 0.420), for example. 17 In our research, we discovered 115 (84.56%) patients had postoperative pyrexia, 29 (21.32%) patients had postoperative hydrocephalus, and 33 (24.26%) patients had CSF fluid leaking. It took an average of 10.2±4.35 days for someone to be admitted to the hospital. 18 However, thorough approach greatly minimises the likelihood of operational difficulties when dealing with a myelomeningocele closure. Preserving neurological capacity and improving the restoration of a fastened spine should be done in concert whenever necessary later on. To avoid the release of cerebrospinal fluid and wound infection/dehiscence, it is important to treat related hydrocephalus as soon as possible. 12

Between 1979 and 1993, 190 individuals underwent surgery, with 43.2% of them being men and 56.8% being women. In 113 patients, myeloma most commonly occurred in the lower back (59.5 percent). More cervical and sacral meningocele patients (P = 0.000) showed nearly normal motor function compared to other meningocele patients. Thirty-six patients (21.7 percent) were found to be free of hydrocephalus in the total population. 20 7.45 million patients were admitted in 2000 as a result of a retrospective study using data from a nationwide inpatient sample database. Patients' demographics, length of stay, prompt disposal upon discharge, hospital statistics, and hospitalisation expenditures were all compiled. Only 35% of patients who developed hydrocephalus after having a

ventriculoperitonea shunt placed needed one postoperatively.

CONCLUSION

Early diagnosis and better surgical treatment may reduce the morbidity and mortality rate. Overall early post-operative complications rate was high but early and accurate diagnosis and management may help to reduce the complication rate.

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