



## NEURAL TUBE DEFECT IN DIYALA RETROSPECTIVE STUDY OF 40 CASES

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### ARTICLE INFO

#### Article History:

Received 20th August, 2017

Received in revised form 13th

September, 2017

Accepted 7th October, 2017

Published online 28th November, 2017

#### Key words:

Neural tube defect, meningocele, meningomyelocele, Hydrocephalus.

### ABSTRACT

Neural tube defect (spinal dysraphism) is an umbrella term used to designate all the forms, open and closed, of spina bifida. It implies, however, splaying of the pedicles and laminae associated with non-fusion and various defects and disorganization of bony spinal element.

**Objective:** To evaluate incidence, frequency of occurrence in different level of spine, seasonal variation and consanguinity. To evaluate the result of surgery in patient attending Baquba Teaching Hospital and AL Hayat Private Hospital

**Patients and methods:** Retrospective study of 40 cases of NTD treated in Baquba Teaching Hospital and AL Hayat Private Hospital from December 2006 to December 2007.

**Results:** 40 cases with NTD, occur mostly in males (75%), with seasonal variation, occur mostly in December, January, February (80%), mostly myelomeningocele (80%), (50%) of patient have partial or full movement, mostly involving Lumber region (70%), and (80%) of patient have consanguinity

**Conclusion:** NTD was of unknown etiology which can diagnosed by ultrasound during pregnancy but the definitive diagnosis may delay till the moment of delivery.

Occurrence of NTD can decreased by several measures and once occur the only treatment was surgical.

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## INTRODUCTION

NTD is an umbrella term used to designate all the form, opened and closed, of spina bifida. It may be occur with or without cutaneous hallmarks, or open with rudimentary neuroectodermal tissue visible somewhere along the spinal axis. Prenatal ultrasound examination notwithstanding, most open NTD in infant are not declared until that moment in delivery when the lower half of the trunk and legs make their appearance.

The lesion vary in size and location, and that, in addition to the asymmetrically altered neurological condition, result in no two infants appearing similar.

### *Spina bifida occulta*

Defect of the spinous process and or associated posterior neural arch. Occur in 5-36 % of general population. Have no clinical importance.

### *Spina bifida aperta*

#### *Meningocele*

The simplest form of open NTD

Characterized by a cystic lesion which covered by meninges and contains CSF which is in continuity with that in the spinal canal but has on neural tissue within its confines.

#### *Meningomyelocele*

Common form of NTD.

There is some form of cystic apparent, even if it collapsed at birth or shortly after.

Rudimentary dura and leptomeninges have developed around and are attached to the malformed neural tube.

#### *Myeloschisis*

A term of infrequent circumstances of a large filleted placode without any encasing meninges.

NTD has been described as the most complex, treatable, congenital anomalies consistent with life.

Its management taxes the emotion of the parent, the spirit of the child, the patience of the surgeon, reserve of the physiotherapist and the ingenuity of the orthotist.

#### *Etiology*

There is no identifiable cause for NTD. A study of the available clues yields an interesting blend of genetic, geographic, circumstantial, environmental and dietary factors.

There is no sex preference for affecting offspring. An interesting observations is the existence of seasonal trends. In Great Britain, the incidence of NTD has, over a survey period

of 10 years, been greater in births occurring in December, January, February than it is during June, July, and august.

This relation to season is reversed in Australia.

Present clues suggest that NTD arise as the result of exposure of embryos “genetically at risk to additional intra-uterine environmental triggers “:

**Dietary**

- Canned cooked meat
- Canned peas
- White bread
- Ice cream
- Tea
- Blighted potatoes

**Folic acid deficiency**

**Associated anomalies**

**Hydrocephalus**

Exactly 80% present of all infants with myelomeningocele have hydrocephalus apparent at birth or developed it within the next few weeks. The largest and more rostral the lesion, the greater the likelihood, and the converts’ applies, so that infant with small sacral lesion have a 50% risk.

**Chiari – malformation**

The chiari – malformation is deemed to be present in all children with NTD. Recent studies indicate that it becomes clinically significant in 10 to 20 % of these children, especially those aged 3 months or less.

**Vertebral anomalies**

**Genitourinary system anomalies**

**Patients and methods**

This is a retrospective study of 40 cases of children borne with NTD treated in Baquba Teaching Hospital and AL Hayat Private Hospital from December 2006 to December 2007.

NTD occur mostly in males (75%).

Its occurrence have seasonal variation, mostly in December, January and February ( 80%). The most common lesion in our study is myelomeningocele (80%). Half of the babies present with no lower limbs movement and the other half with partial or full movement. Regarding the level, in our study mainly affecting lumber area (70%). In our study the majority of the patients have history of consanguinity (80%).

**Table 3** clinical picture

No movement	20
Partial movement	17
Full movement	3

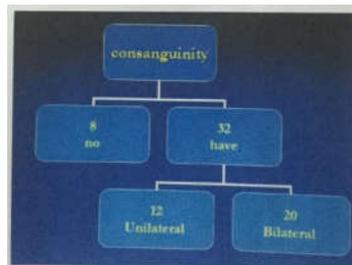
**Table 4** type of NTD

myelomeningocele	32
meningocele	6
myeloschisis	2

**Table 5** Level of the lesion

lumber	28
dorsolumber	7
others	5

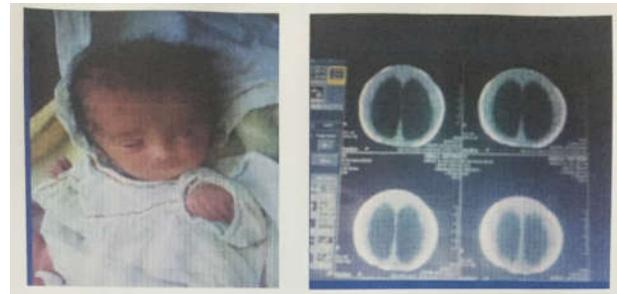
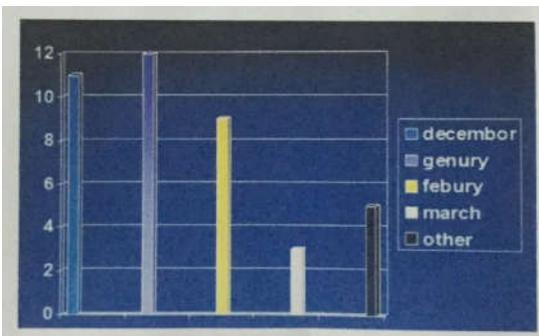
**Table 6** Consanguinity



**Table 1** Male to female ratio

male	30
female	10

**Table 2** Seasonal variation



**Picture 1** Hydrocephalus



Picture 2 Meningocele



Picture 3 Meningomyelocele



Picture 4 Upper dorsal NTD

## CONCLUSION

NTD is a disease that can diagnosed during pregnancy by AFP or ultrasound, but the definitive diagnosis might delay until the moment of the delivery. Its etiology was not clear and might occur by different dietary factors or folic acid deficiency. Its management taxes the emotion of the parents, the spirit of the child, the patience of the surgeon, the reserve of the physiotherapist, and the ingenuity of the orthotist. So prevention of occurrence of the NTD by different measures was most important than treatment.

## Recommendation

### Education regarding marriage

Since there is high incidence of NTD in close family marriage (cousins) so we can decrease the incidence by marriage education.

### Time of fertilization vis time of delivery

Since there is seasonal variation, we can decrease the incidence by avoid fertilization that lead to deliver a baby in high risk months.

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