



RETROSPECTIVE STUDY OF PATIENTS WITH CHIARI MALFORMATION AT OUR INSTITUTE:

Neurosurgery

Dr. Bhagwati Salgotra

Associate Professor, Department of NeuroSurgery, S.B.K.S. Medical Institute and Research Center, Pipariya, Vadodara

Dr. Prashant Prabhakar Jadhav*

Resident, Department of NeuroSurgery, S.B.K.S. Medical Institute and Research Center, Pipariya, Vadodara *Corresponding Author

ABSTRACT

INTRODUCTION:

Chiari malformations are a collection of hindbrain abnormalities from simple herniation of the cerebeller tonsils through the foramen magnum to complete agenesis of the cerebellum1.

AIM AND OBJECTIVES

To evaluate the clinical outcome of patients undergoing surgery for Chiari Malformation.

MATERIAL AND METHODS

This study consists of 56 cases of Chiari malformation who have undergone surgical treatment in Neurosurgery department, Dhiraj hospital, Vadodara from the period of September 2014 to December 2016.

KEYWORDS

INTRODUCTION

Chiari malformations are a collection of hindbrain abnormalities from simple herniation of the cerebeller tonsils through the foramen magnum to complete agenesis of the cerebellum1. Syringomyelia occurs in 50% to 70% of chiari 1 malformation (Chiari malformation and syringomyelia). It does not appear to be related to the degree of tonsillar herniation; in fact, it may occur more often with an intermediate degree of herniation. When present, syringomyelia is responsible for the clinical presentation, rather than the tonsillar herniation. Management is mainly surgical which involves posterior fossa decompression at and around foramen magnum with c1 and c2 laminectomy with as and when required shunt surgery. No single surgical procedure is perfect, leading to development of many alternative procedures with combinations having varied outcome. Here we present our experience in 56 cases of chiari malformation.

MATERIAL AND METHODS

This study consists of 56 cases of Chiari malformation who have undergone surgical treatment in Neurosurgery department, Dhiraj hospital, Vadodara from the period of September 2014 to December 2016.

INCLUSION CRITERIA:-

All cases of Chiari Malformation who had undergone surgical treatment has been included in these study.

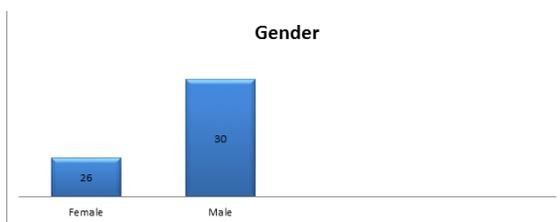
EXCLUSION CRITERIA:-

Conservatively treated cases.

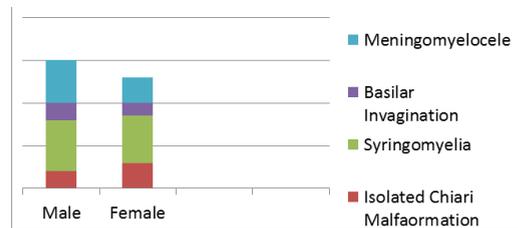
RESULTS AND DISCUSSION

1. SEX DISTRIBUTION:

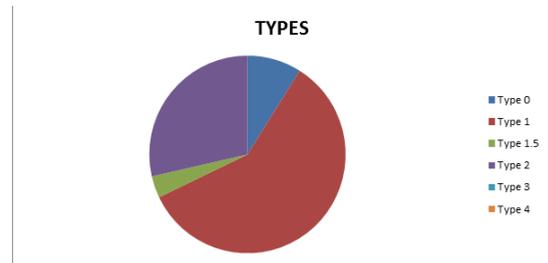
There were 26 females and 30 males whose ages ranged from 02 to 45 years.



There were 10 patients with isolated Chiari Malformation, 23 associated with syringomyelia, 07 associated with basilar invagination and 16 associated with meningocele.



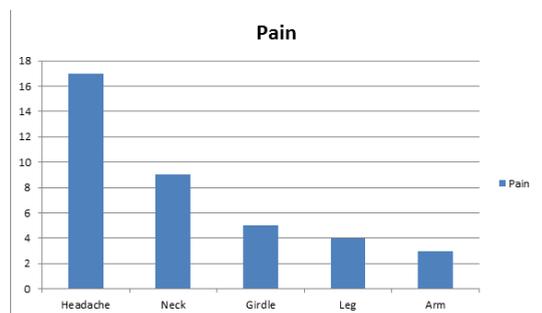
TYPES OF PATIENT:



There were 5 cases of type 0 , Type 1 – 33 cases ,Type 1.5 – 2 cases ,Type 2– 16 cases ,Type 3–0 cases ,Type 4–0 cases, Total cases - 56 .

1. DISTRIBUTION OF PAIN:

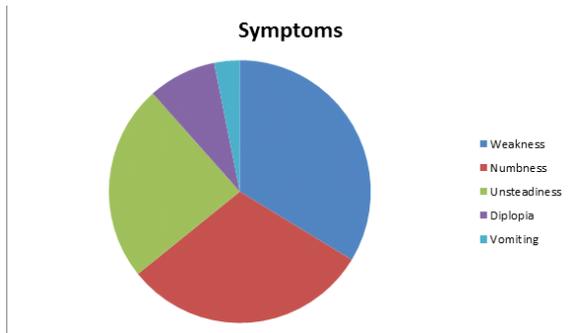
Most common presentation was headache followed by neck pain , girdle pain , pain in leg and arm.



1.SYMPTOMS:

Most common presentation was weakness and numbness followed by unsteadiness.

Few patients presented with Diplopia and vomiting.



MRI AND CT FINDINGS:

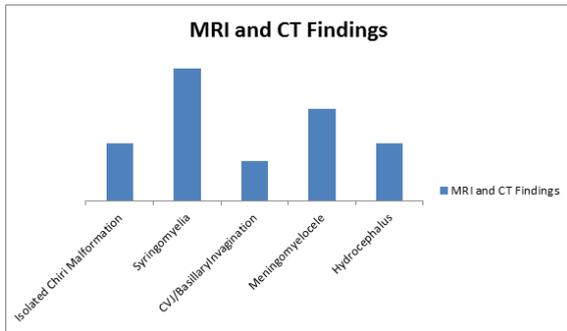


FIGURE 1: PRE-OPERATIVE MRI:

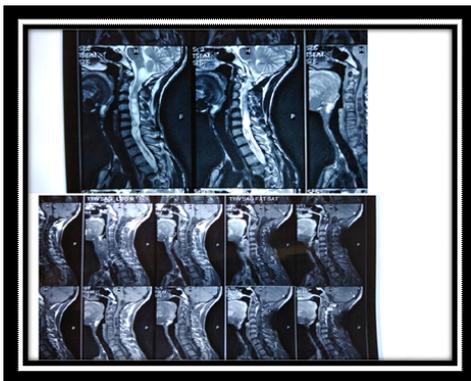
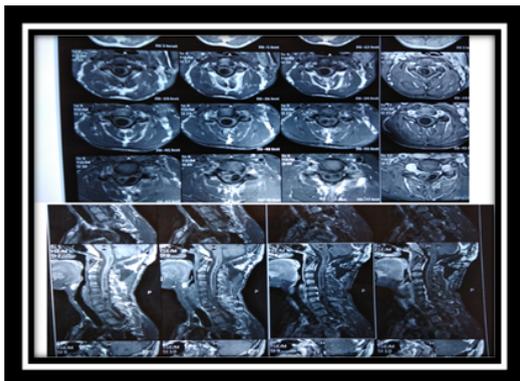


FIGURE 2: POST-OPERATIVE MRI:



1.SURGERY:

The surgery was based on foramen magnum decompression with lax duroplasty, tonsillectomy, CV junction surgery, VP shunt and meningomyelocele repair.

Figure 3: Foramen Magnum Decompression with duroplasty :

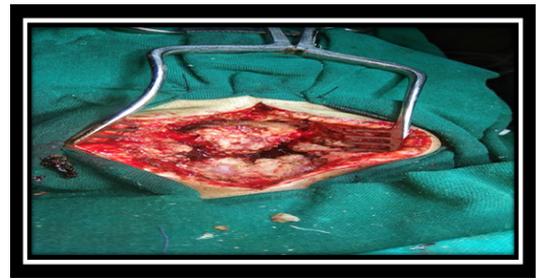
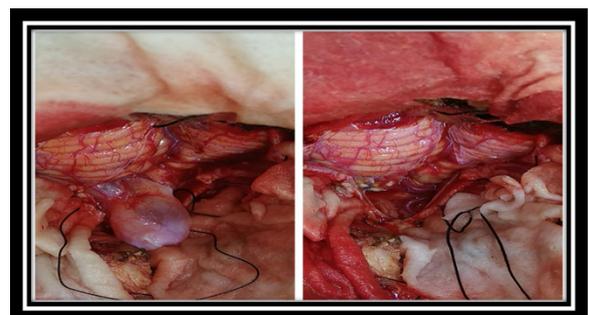


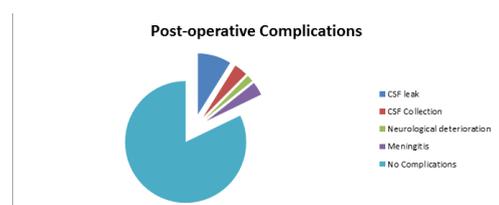
Figure 4: Foramen Magnum Decompression with duroplasty with C1-C2 Fixation:



Figure 5: Foramen Magnum Decompression with tonsillar shrinkage/tonsillectomy with duroplasty

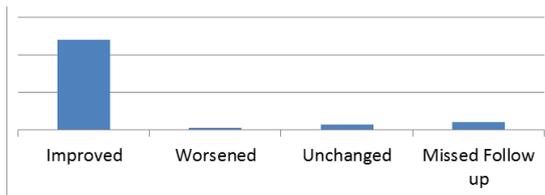


1. POST-OPERATIVE COMPLICATIONS:



CSF leak was most common complications in 5 cases followed by CSF collection (2 cases) meningitis (2 Cases). 46 patients had no post-operative complications.

1. OUTCOME:



48 patients improved, 1 worsened, 3 remained unchanged, 4 missed follow up, on the basis of pre operative and post operative nurick's myelopathy grading.

CONCLUSION:

We conclude that the best results with Chiari Malformation surgery are obtained by foramen magnum decompression. Those Chiari Malformation cases with other abnormalities such as atlanto-axial dislocation and basillar invagination requires C1-C2 fixation and those who are not improved with FMD alone shows good improvement after syringo-subarachnoid shunt.

REFERENCES:

1. Youmans neurological surgery, sixth edition, volume 4. Page no. 1918-1927.
2. Definition of adult chiari malformation: brief historical overview, G.K. BEJJANI neurosurg focus 11 (1): article 1, 2001.
3. Textbook of operative neurosurgery by Prof B. Ramamurthi vol 2 page no. 951-961.
4. The first description of syringomyelia; journal of royal society of medicine, july 2012 vol. 105 no. 7278.
5. Ferruh gezen et al Neurosurg focus 8(3): Article 10, 2000.
6. Hida and iwasaki, syringosubaranoid shunt for syringomyelia with chiari malformation, Neurosurg focus 2001 Jul 15;11(1):E7.
7. DENG Kan, LI Yong-ning, LI Gui-lin, GAO Jun, YANG Zhong, DI Xiao, WANG Ren-zhi, Neural endoscopic assisted micro-invasive management of Chiari Malformation; Chinese medical journal 2010;123(14):1878-1883.
8. Surgical treatment of Chiari I malformation--analysis of intraoperative findings, complications, and outcome for 371 foramen magnum decompressions. Pubmed, neurosurgery 2012 Aug;71(2):365-80
9. The Developing Human, 8th ed., p. 382-388.
10. Rhoton's posterior cranial fossa: Microsurgery anatomy and surgical approaches, neurosurgery vol 47, no. 3, September 2000 supplement, page no. S155
11. Prasad vannemreddy et al, Congenital chiari malformations, neurology india 2010, Aug;58(1):6-14
12. Oldfield EH et al, Elucidating the pathophysiology of syringomyelia, journal of neurosurgery, 1999 Oct;91(4):553-62.
13. Robert H. Wilkins, M.D. Setti Rengachary, M.D. Textbook of Neurosurgery, second edition, volume III page no-3593-3616.
14. Clare Rusbridge, Dan Greitz, and Bermans J. Iskandar, Syringomyelia: Current Concepts in Pathogenesis, Diagnosis, and Treatment: J Vet Intern Med 2006;20:469-479.
15. Chiari Type II Malformation: Past, Present, and Future, Kevin L. Stevenson, MD Neurosurg Focus. 2004;16(2):83.
16. Goel/Cacciola, The craniovertebral junction: Diagnosis, pathology, surgical Techniques, 2011, 24 chiari malformation and syringomyelia, Joseph, vivek; fehlings, Micheal G.
17. Milhorat TH. Classification of syringomyelia. Neurosurg Focus 2000;8(3):E1.
18. Alfredo Avallaneda fernandez et al, Malformations of the craniocervical junction, chiari type I and syringomyelia: classification, diagnosis and treatment, BMC Musculoskeletal Disord. 2009; 10(Suppl 1): S1
19. Zolty p, sanders MH, Pollack IF. Chiari malformation and sleep disordered breathing: A review of diagnostic and management issues. Sleep 2000;23:637-43.
20. M.S.Greenburg, M.D. Handbook of neurosurgery, seventh edition, volume I page no 234.
21. Mazlout and lamaout; European journal of orthopedic surgery and traumatology 2005.