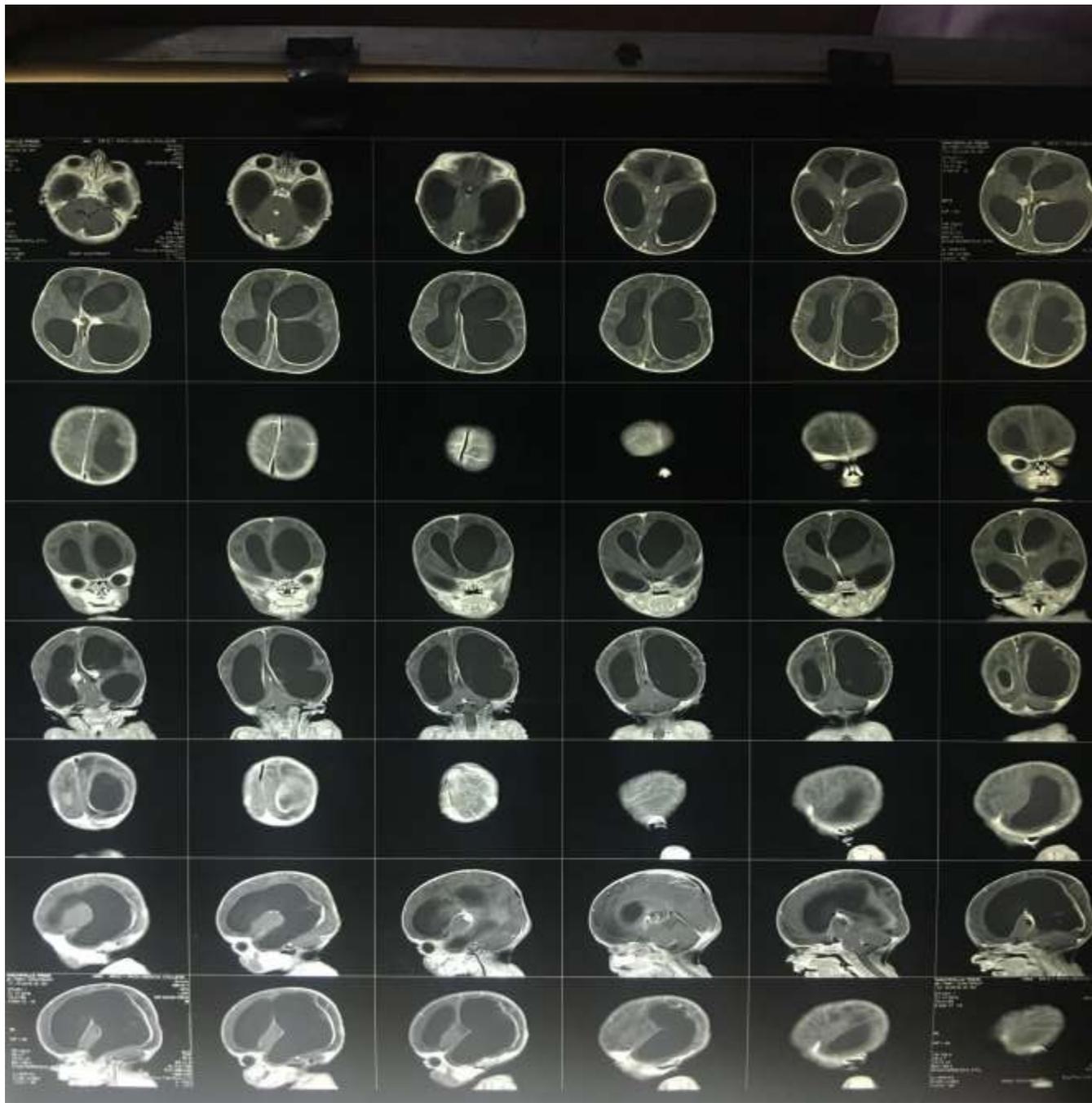


# CASE HISTORY 2

- 9 months old male child was pediatric department with h/o
- Fever since 1 month
- Increased head circumference since 1 month.
- Failure to thrive.

# CLINICAL EXAMINATION

- Patient was febrile
- Large head size
- Dilated veins over scalp.
- Fontanelle bulging and tense.



- Repeated ventricular tapping was done and csf was sent for routine microscopy and culture sensitivity.
- R/M showed increased cell counts >2000.
- CSF culture showed fungal growth candidiasis infection.

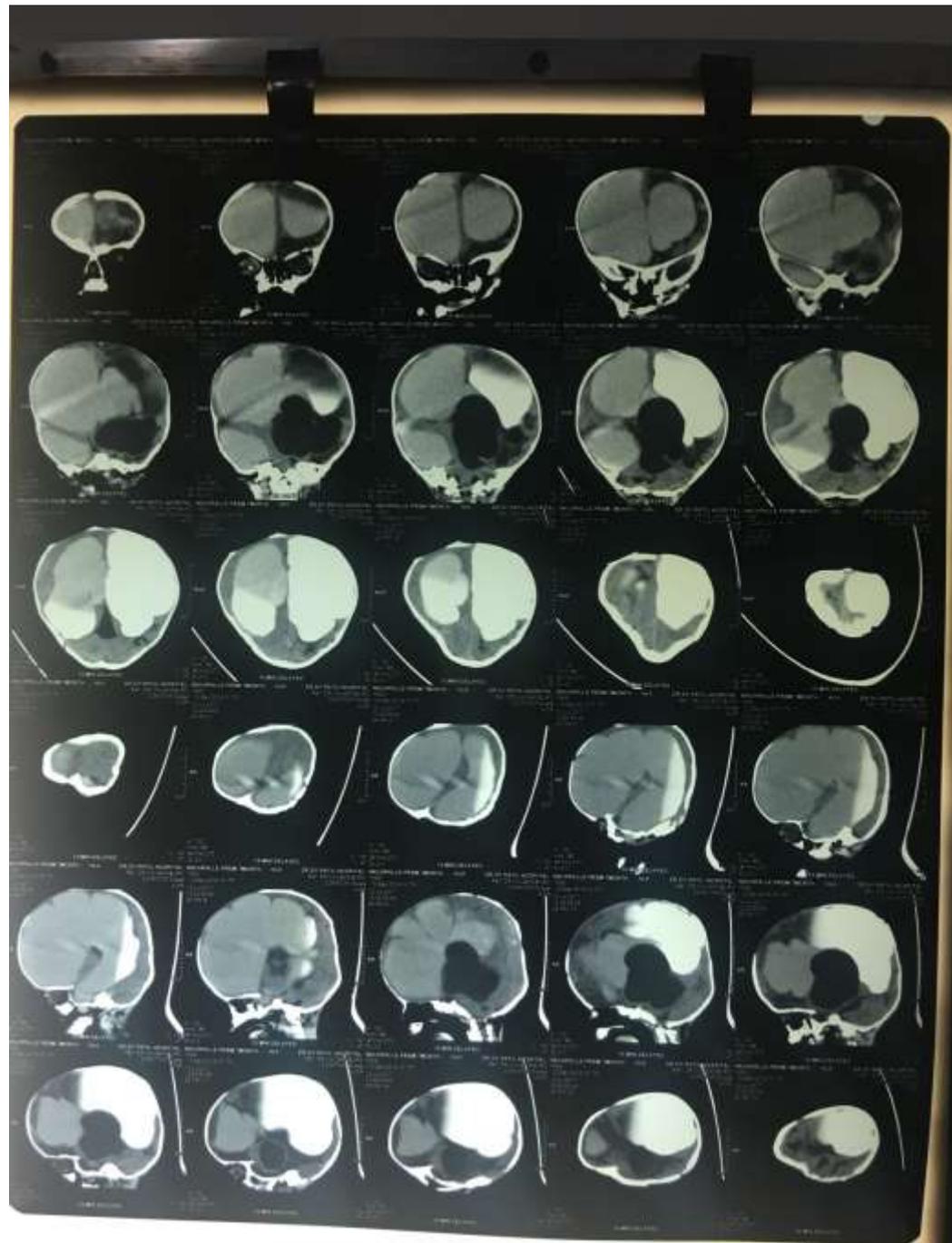
- Patients was then given antifungal treatment and patient improved following treatment.
- Patient's relative took dama and follow-up was lost.
- After 1 month patient again came to neurosurgery opd with signs of hydrocephalus.
- Ct scan was done immediately which showed following results.



- CSF ventriculography was done which showed following results.









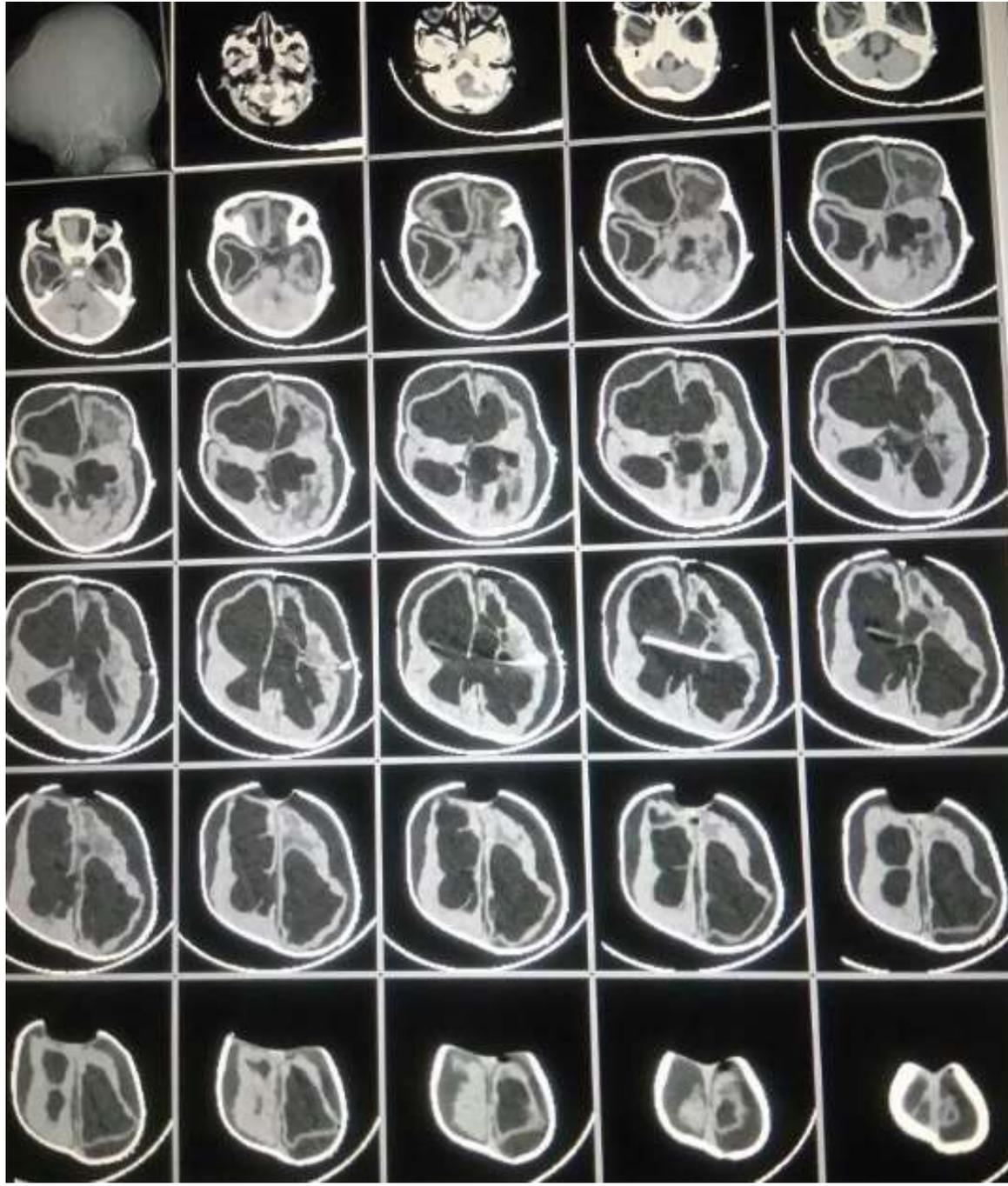






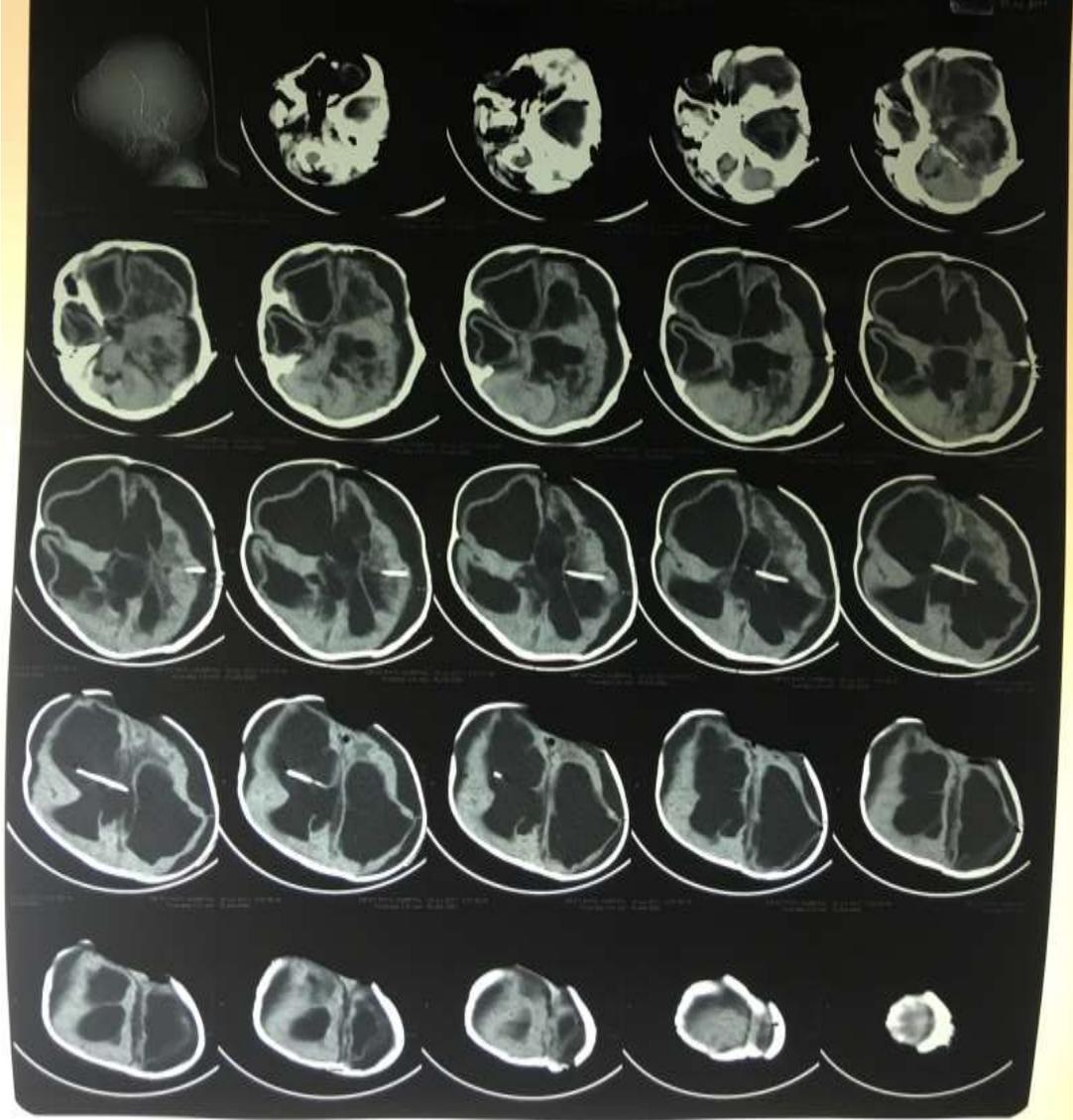


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## Discussion:

- Multiloculated hydrocephalus (MLH) is a condition in which patients have multiple, separated abnormal cerebrospinal fluid (CSF) collections with no communication between them.
- Uniloculated hydrocephalus is defined as cystic dilatation of one part of the normal ventricular system such as obstruction of one of the foramina of Monroe or an isolated fourth ventricle obstruction.
- MLH is also referred to as multilocular hydrocephalus, multiseptate hydrocephalus, polycystic hydrocephalus, ventricular compartmentalization, intraventricular septations and multicompartmental hydrocephalus.

- Etiologies of MLH include complications of neonatal meningitis and germinal matrix hemorrhage in premature neonates.
- Other causes include post-shunt infection, overdrainage in shunted hydrocephalus, direct parenchymal injury inflicted by a catheter tip, head trauma, and intracranial surgery.

- Predisposing factors include low birth weight, prematurity, perinatal complications, and congenital malformation.
- Although the full pathogenesis of MLH remains unclear, it is known that inflammation leads to subependymal gliosis, which produces glial tufts and septations that occlude the normal ventricle system.
- Septations also develop via organization of intraventricular exudate and debris from ventriculitis. .

- Multimodal surgical options exist for the treatment of MLH, including the insertion of multiple shunts into each dilated CSF cavity, fenestration of septate membranes by open craniotomy and/or endoscopy, and combined approaches.

## Advantages and disadvantages of open craniotomy over endoscopy.

- Craniotomy for fenestration has several advantages.
- First of all, it allows better visualization of the compartments and membranes.
- Therefore, it enables easy fenestration or excision of membranes, and wide communication of the cystic compartments, which allows the possibility of avoiding placement of multiple shunt catheters.

- Additionally, hemostasis is more easily achieved with conventional microscopic technique.
- However, patients who undergo open craniotomy more frequently develop subdural hygroma and/or hematoma because of the profound loss of CSF during surgery.

- Loss of CSF can lead to ventricular collapse and sagging of the brain, and the chances of shunt malfunction also increase.
- There is more blood loss in open craniotomy, which can increase surgical morbidity in neonates and infants.

## Advantages and disadvantages of endoscopy over open craniotomy.

- In the past decade endoscopic procedures have been developed to minimize the invasiveness of conventional microneurosurgery.
- As endoscopy techniques and devices have advanced, the use of endoscopy has become more frequent than open craniotomy in the treatment of MLH.
- Using the endoscope has advantages such as less invasiveness, avoidance of brain retraction, less blood loss, faster operation time, and shorter hospital stay.

- It also has several disadvantages.
- A subdural hematoma and/or hygroma may form, but the incidence of this is lower than with open craniotomy.
- The risk of ventriculitis, CSF leakage (subcutaneous CSF collection), and hemorrhage are reported to be similar to that with open craniotomy.

- Intraoperative bleeding can usually be easily managed by irrigation or coagulation.
- However, handling of significant intraoperative bleeding is not as easy in endoscopy as in open craniotomy.

# CONCLUSION

- Because the disease is very complex and patient conditions vary significantly in MLH, it is difficult to compare the usefulness of endoscopy with open craniotomy as initial surgical management.
- Currently, endoscopic fenestration tends to be performed more often as initial treatment and open craniotomy may be useful in patients requiring repeat endoscopic procedures.

- However, this is not because endoscopic procedures are superior, but because of their minimally invasive nature and decreased surgical morbidity and mortality.
- Therefore, surgical options should be carefully considered depending on the individual case.