COMPARISION OF ENDOSCOPIC THIRD VENTRICULOSTOMY ALONE AND COMBINED WITH CHOROID PLEXUS CAUTERIZATION

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Abbreviations

- CPC =choroid plexus cauterization;
- ETV = endoscopic third ventriculostomy;
- PIH = postinfectious hydrocephalus;
- NPIH = nonpostinfectious hydrocephalus;
- PHH = posthemorrhagic hydrocephalus;

Introduction

- Sir Walter Dandy (1918): cauterizing of the choroid plexus in 4 children
- 1950s - 1980s: neuroendoscopy was restricted because of high morbidity and mortality
- 1995 : Pople reported 116 children who had CPC between 1973 and 1992

Warf, MD


wacom
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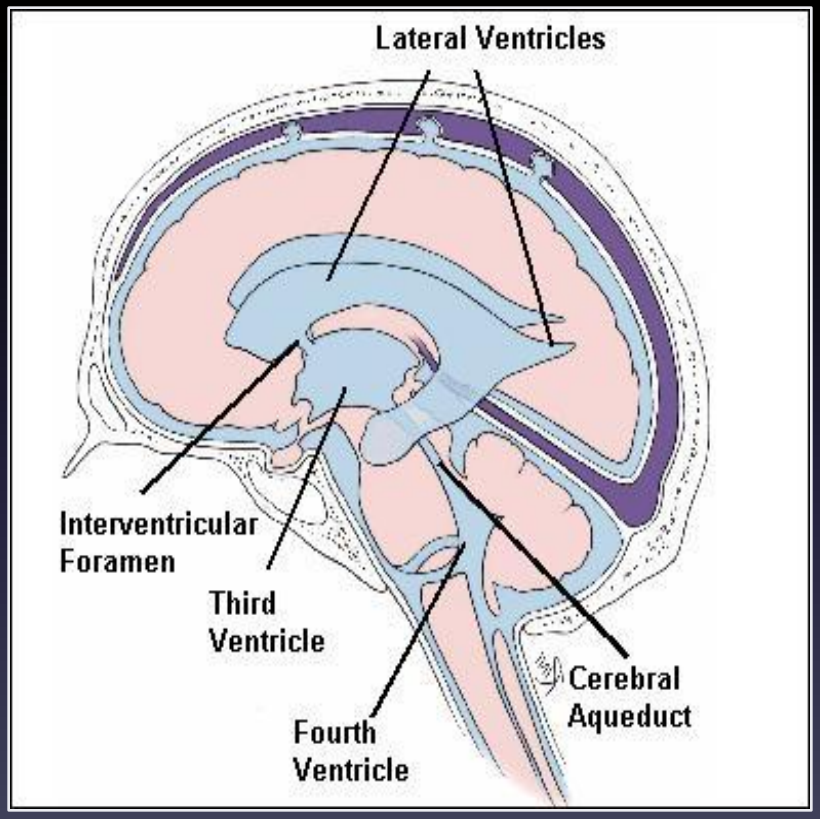
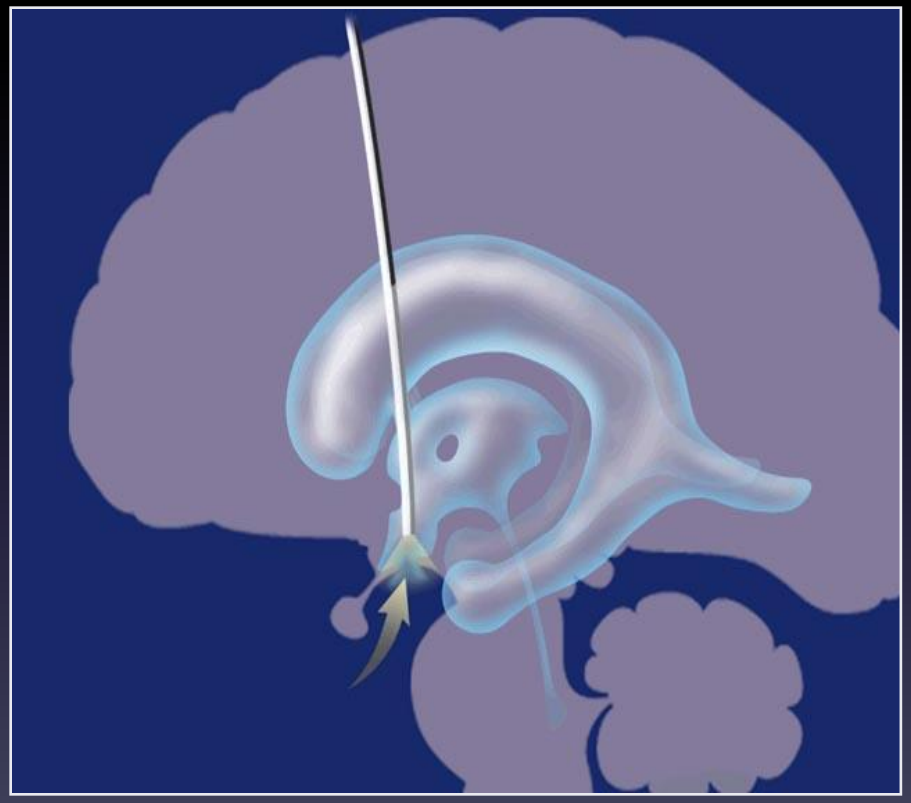
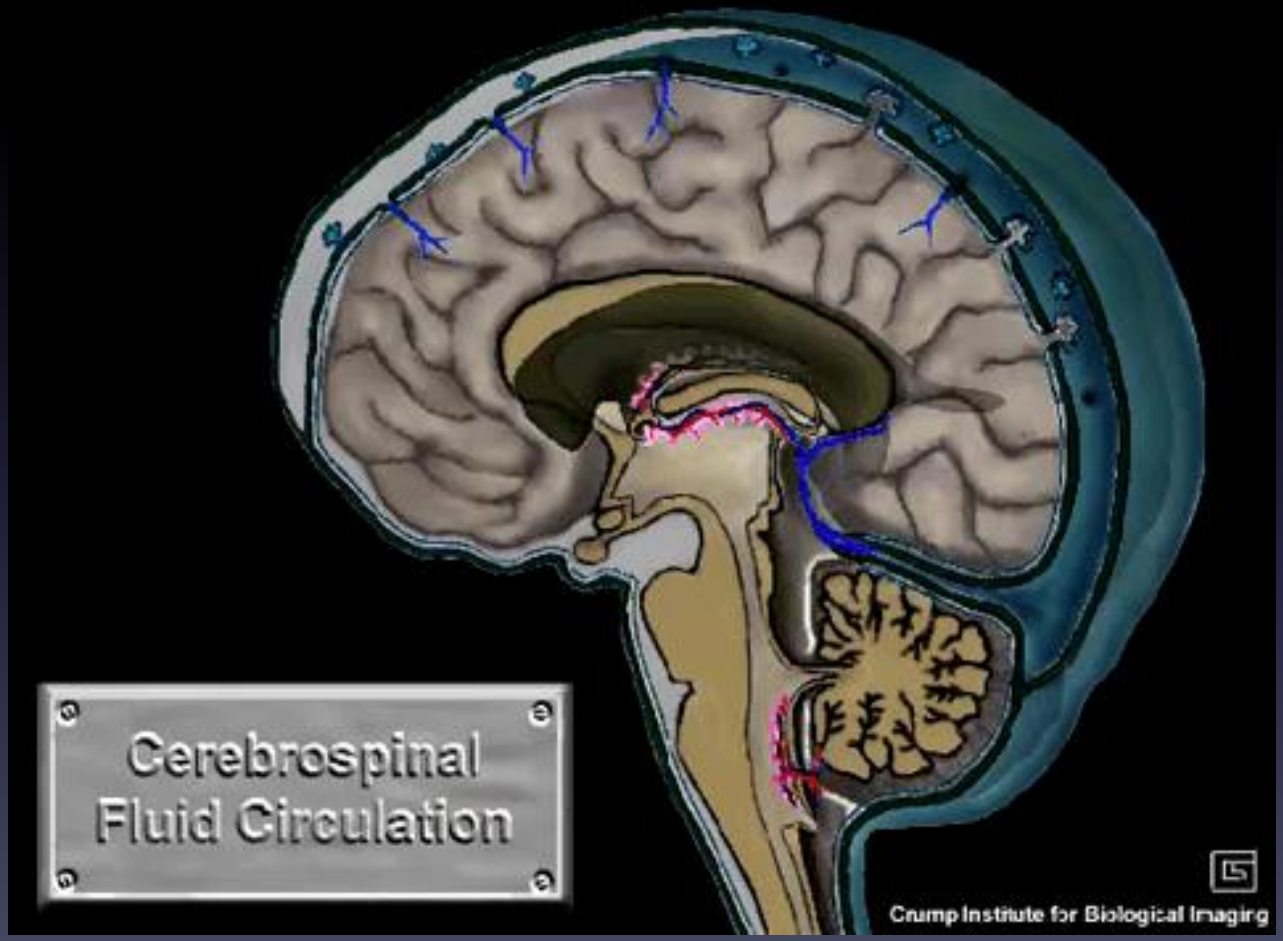
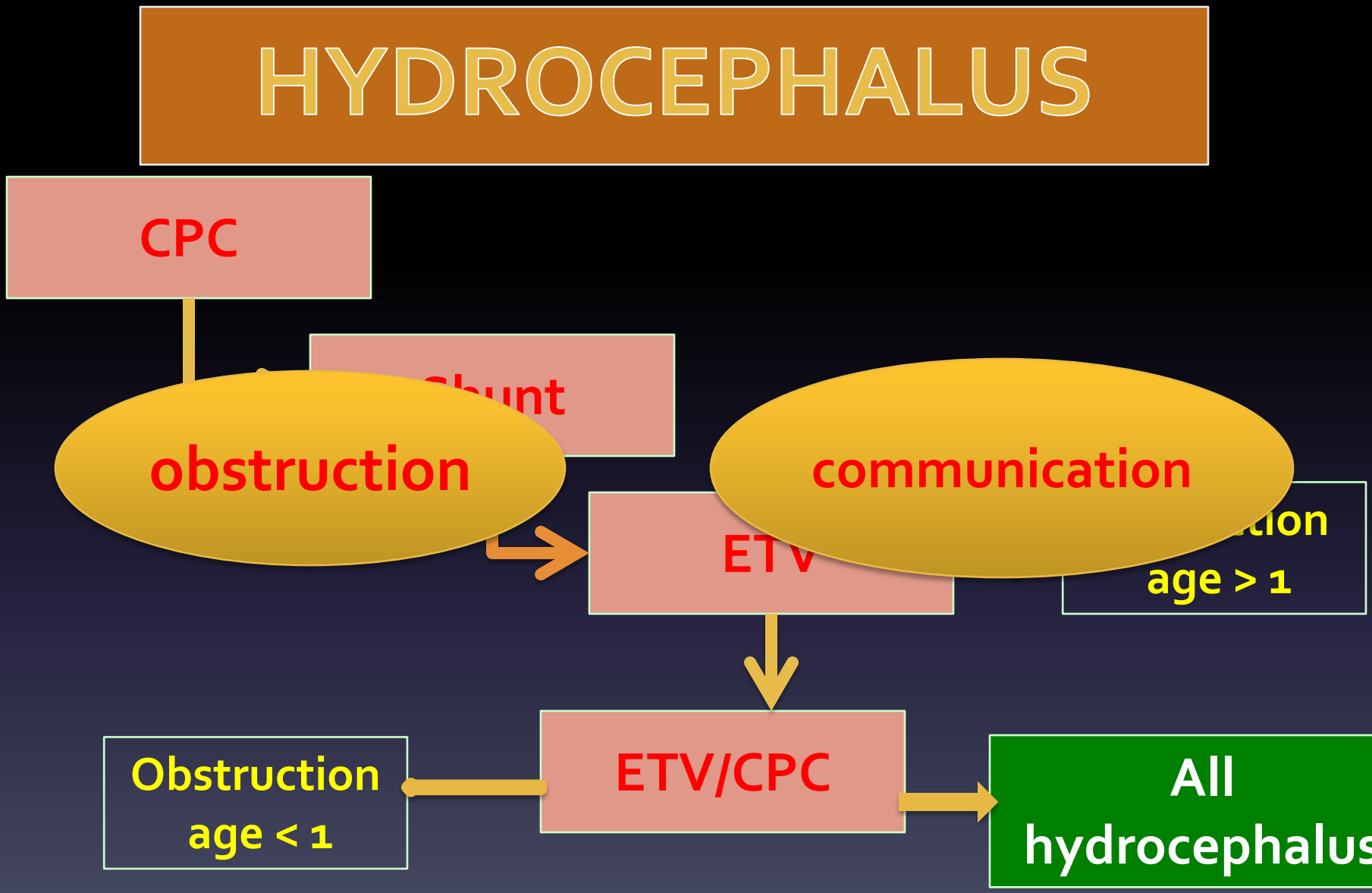
ANATOMY


Lateral Ventricles
Interventricular Foramen
Third Ventricle
Cerebral Aqueduct
Fourth Ventricle



PHYSIOLOGY


Cerebrospinal
Fluid Circulation
Crump Institute for Biological Imaging


HYDROCEPHALUS
CPC
obstruction
communication
ETV
age > 1
Obstruction
age < 1
ETV/CPC
All
hydrocephalus

ETV/CPC

- CURE Children's Hospital of Uganda
- 550 children treated with ETV or ETV/CPC
- Classified by age and status of aqueduct
- ETV alone: 284
  - Mean follow up: 19 months
- ETV/CPC: 266
  - Mean follow up: 9.2 months

Comparison of endoscopic third ventriculostomy alone and combined with choroid plexus cauterization in infants younger than 1 year of age: a prospective study in 550 African children
B. C. Warf
J. Neurosurg., 2005 vol. 103 (6 Suppl),

B. C. Warf

TABLE 2

Differences in outcome based on procedure and age

Procedure & Significance	Patient Age		
	< 1 Yr	≥ 1 Yr	Total
ETV only			
no. of successes (%)	98 (47)	47 (80)	145 (54)
total procedures	209	59	268
ETV–CPC			
no. of successes (%)	141 (66)	33 (80)	174 (68)
total procedures	214	41	255
p value	<0.0001	1.000	0.0012

TABLE 3

*Differences in outcome based on origin of hydrocephalus in patients younger than 1 year of age**

Procedure & Significance	Origin of Hydrocephalus			
	PIH	NPIH	MM	PHH
ETV only				
no. of successes (%)	70 (52)	21 (38)	7 (35)	—
total procedures	134	55	20	—
ETV–CPC				
no. of successes (%)	72 (62)	32 (70)	34 (76)	2 (40)
total procedures	117	46	45	5
p value	0.1607	0.0025	0.0045	—

* MM = myelomeningocele; — = not applicable.

J. Neurosurg: Pediatrics / Volume 103 / December, 2005

ETV/CPC for Aqueductal Stenosis

- 35 patients less than 1 year of age
- 19 male, 16 female
- ETV alone
  - 12 infants
  - Mean age 4.7 months
  - Mean follow up 51.6 months
- ETV/CPC
  - 25 infants
  - Mean age 3.5 months
  - Mean follow up 31.2 months

Long-term outcome for endoscopic third ventriculostomy alone or in combination with choroid plexus cauterization for congenital aqueductal stenosis in African infants: Clinical article
Benjamin C Warf, Sarah Tracy, and John Mugamba
J Neurosurg Pediatr, 2012 vol. 10 (2) pp. 108-111

- Successful treatment of hydrocephalus
  - ETV alone 48.6%
  - ETV/CPC 81.9%
- All failures occurred by 6 months

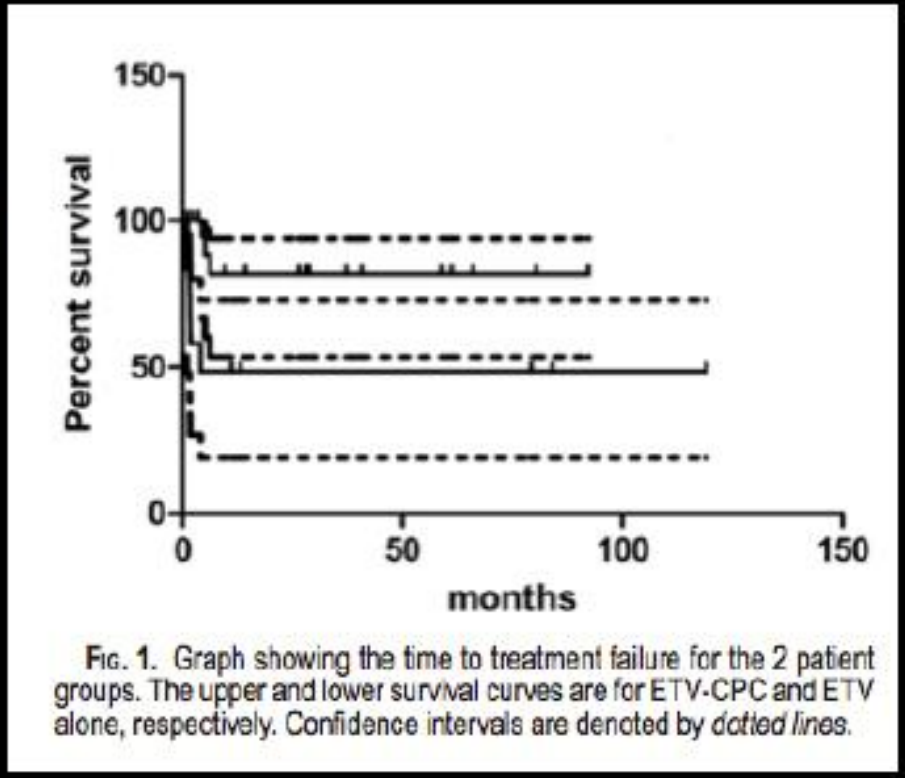


FIG. 1. Graph showing the time to treatment failure for the 2 patient groups. The upper and lower survival curves are for ETV-CPC and ETV alone, respectively. Confidence intervals are denoted by *dotted lines*.

ETV Complications

- Systematic review 2672 ETV
- Overall complication rate 8.8%
- Permanent morbidity 2.1%
  - 1.2% neurologic
    - Hemiparesis 0.4%
    - Gaze palsy 0.3%
    - Memory disorder 0.1%
    - Consciousness disorder 0.4%
  - 0.9% Hormonal/Hypothalamic
    - Diabetes insipidus 0.5%
    - Weight gain 0.4%
    - Precocious puberty 0.04%
- Intraoperative Hemorrhage 0.66%
  - Basilar Artery Injury 0.14% (4 cases)

Complications of endoscopic third ventriculostomy: a systematic review.
Triantafyllos Bouras and Spyros Sgouros
Acta Neurochir Suppl, 2012 vol. 113 pp. 149-153

Case Study

The 7-month –old boy, the largement circumference head (51cm), bulging fontanelle, splitting of the cranial sutures.

CONCLUSIONS

- The ETV–CPC is more successful than ETV alone in infants younger than 1 year of age
- ETV–CPC may be the best option for treating hydrocephalus in infants

THANKS FOR ATTENTION