Polyposis syndromes in children

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Management of Familial Adenomatous Polyposis in Children and Adolescents: Position Paper From the ESPGHAN Polyposis Working Group

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Management of Peutz-Jeghers Syndrome in Children and Adolescents: A Position Paper From the ESPGHAN Polyposis Working Group

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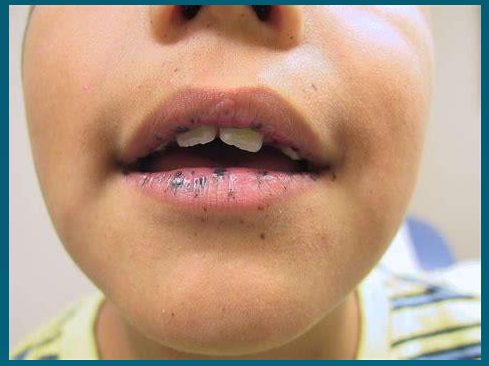
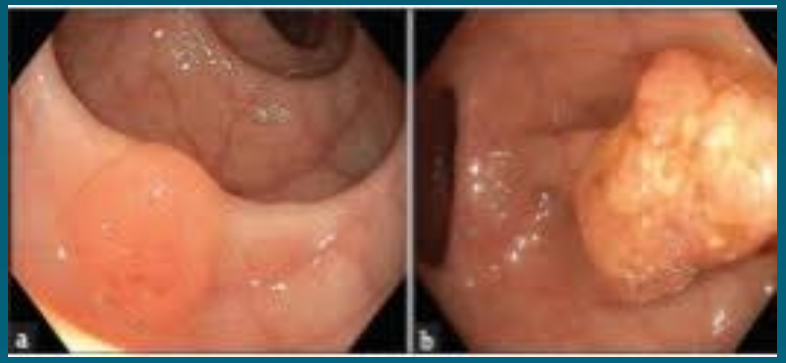


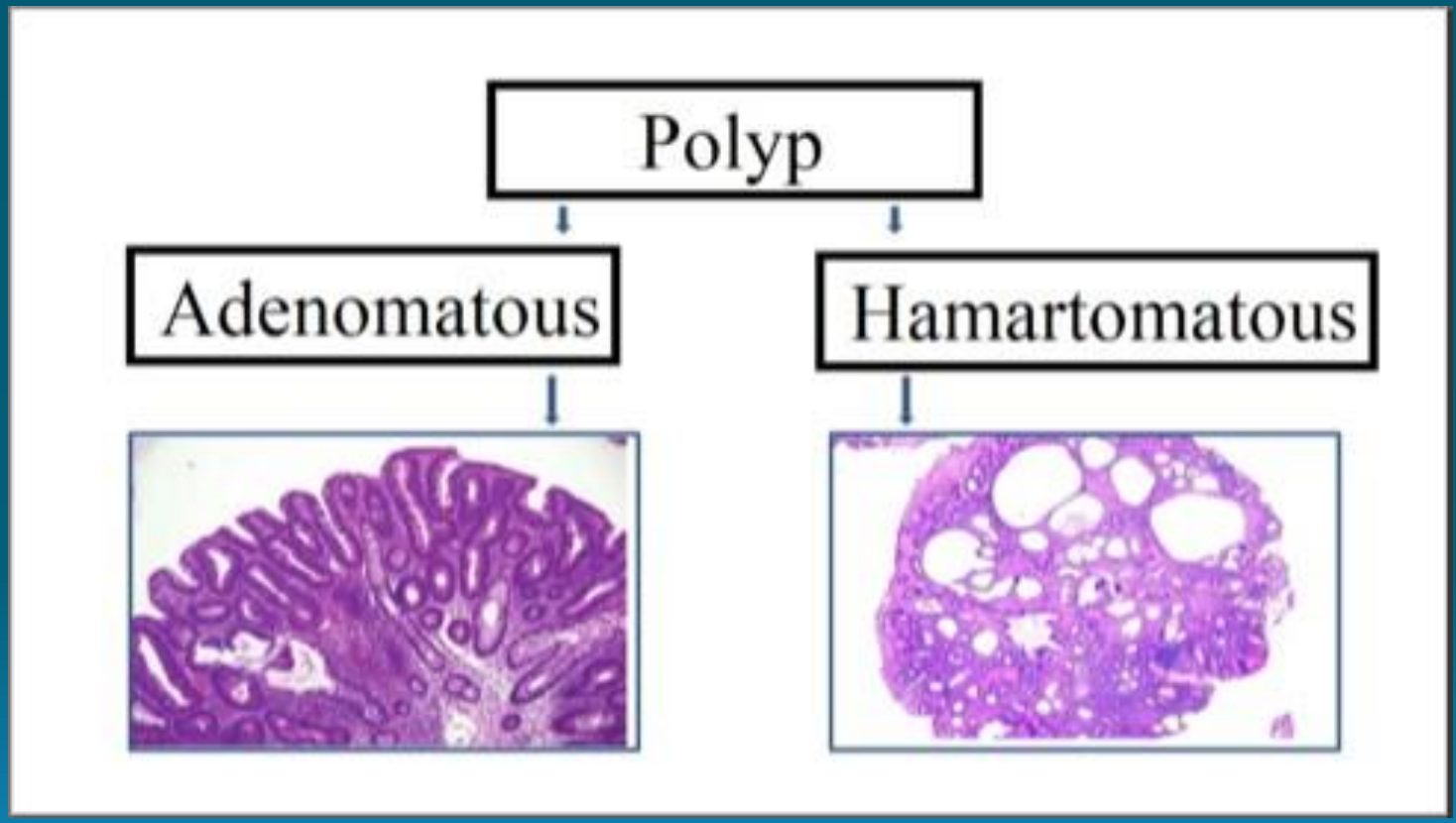

a
b

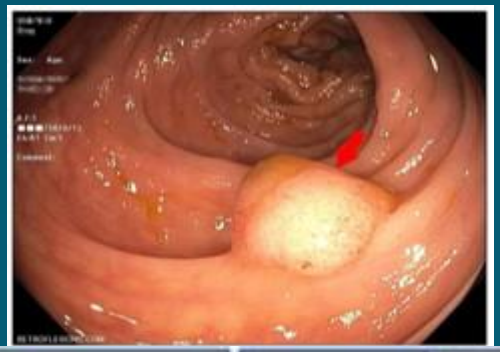
treatment

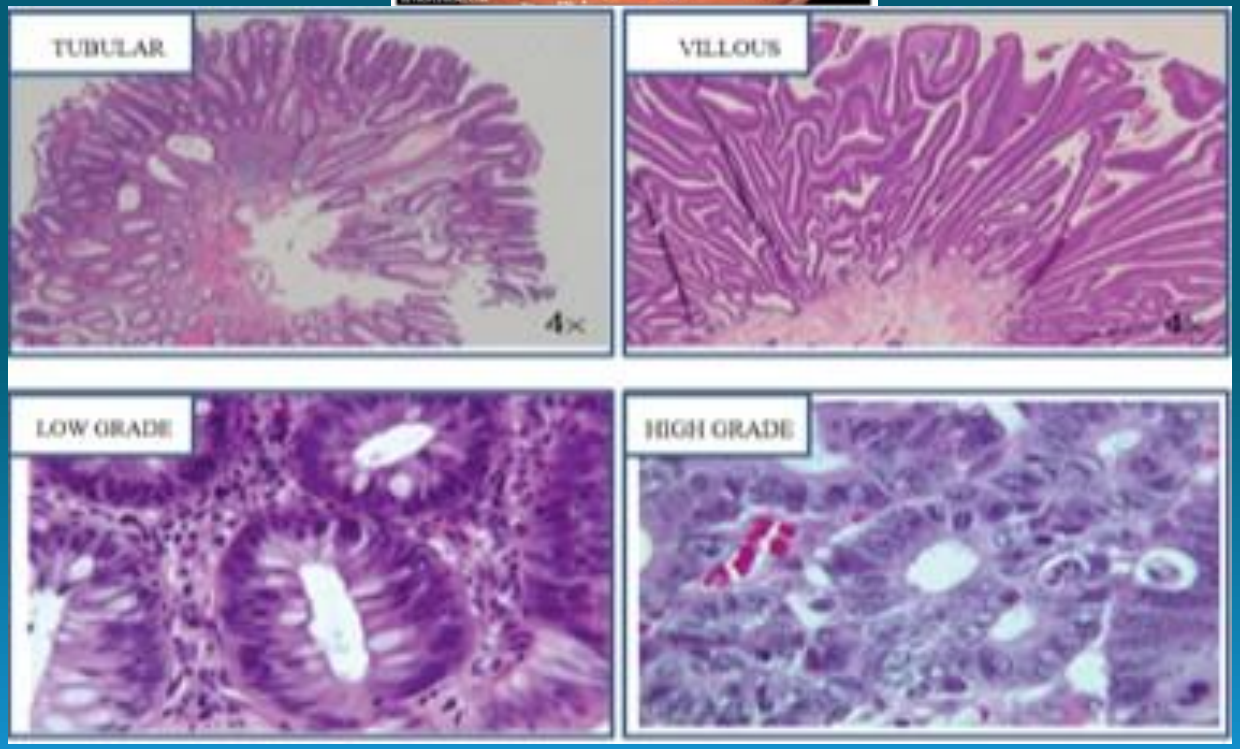
diagnosis

surveillance

genetics


Polyp
Adenomatous
Hamartomatous




TUBULAR
VILLOUS
LOW GRADE
HIGH GRADE

Isolated Adenomatous polyp

- Endoscopic resection
- Search for history of FAP/familial CRC
- Genetic counseling

Findings at Index Examination	Surveillance
Single tubular adenoma	5 y
Multiple adenomas or villous	3 y
Numerous adenomas	Consider 1 y

Adenomatous

- Familial adenomatosis Polyposis
- Gardner syndrome
- Turcot syndrome
- Attenuated FAP

Hamartomatous

- Juvenile polyposis syndrome
- Peutz-jeghers syn
- PTEN hamartoma tumor syn

- The most common inherited polyposis synrome
- Definition>100 colorectal adenomatous polyps

- Automosal dominant
- APC gen
- Positive up to 90%
- In 15-20% of the cases are de novo

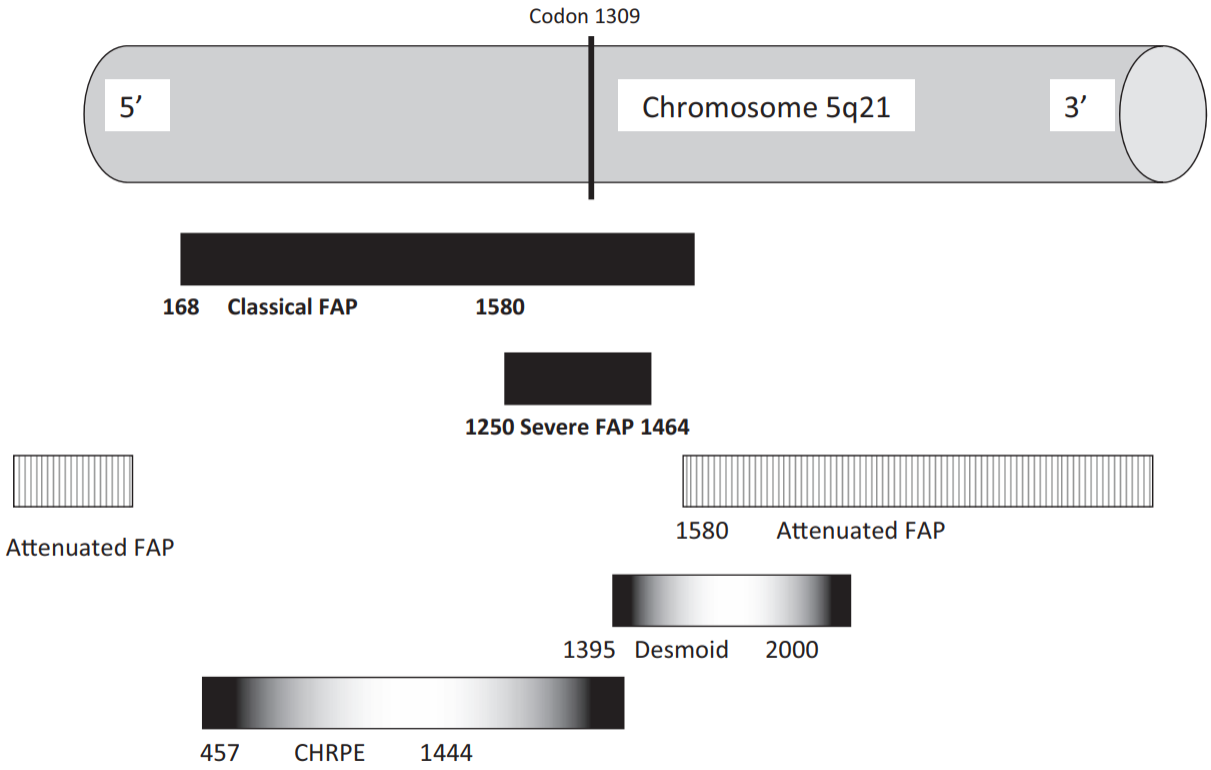


FIGURE 1. Genotype phenotype correlations of the *APC* gene. FAP = familial adenomatous polyposis.

FAP-colonic polyps

- Age-first decade
- Most of the children –asymptomatic
- Symptoms- rectal bleedings, abdominal pain, anemia

FAP-gastric polyps

- Gastric fundic gland poyps occure in the body in 50% of FAP-affected adults.

FAP-duodenal polyps

- can progress to malgnancy if untreated
- Side –viewing endoscopes to detect adenoma

FAP-small bowel

- Small- bowel adenomas may occur
- Usually requires no intervention

TABLE 1. Extracolonic manifestation of familial adenomatous polyposis

Site	Examples
Bone	Osteomas, mandibular, and maxillary (50%–90%)
	Exostosis
	Sclerosis
Dental abnormalities	Impacted or supernumerary teeth
	Unerupted teeth (11%–27%)
Connective tissue	Desmoid tumours (10%–30%)
	Excessive intra abdominal adhesions
	Fibroma
	Subcutaneous cysts
Eyes	Congenital hypertrophy of the retinal pigment epithelium
CNS	Glioblastomas, eg, Turcot syndrome
Adenomas	Stomach
	Duodenum
	Small intestine
	Adrenal cortex (7%–13%)
	Thyroid gland
Carcinomas	Thyroid gland (2%–3%)
	Adrenal gland
Liver	Hepatoblastoma (<1%)

CNS = central nervous system.

Cancer risk

- Lifetime risk for CRC is 100%
- Mean age for cancer development-39y.
- Extra-colonic malignancies(hepatobelastoma, brain,thyroid) are very rare.

chemoprevention

- Potentioal role of chemoprevetion:
  - Chidren with classic FAP-delay surgery
  - Doudenal polyposis-prevent surgery

Treatment

- Colectomy-to eliminate the risk for CRC
  -illeo-rectal anastomosis
  - ileal pouch-anal anastomosis

test	when
▪ Geneting testing ▪ Colonic adenoma with no mutation ▪ First colonoscopy	▪ 12-14 years ▪ Dose not exclude FAP
▪ Colectomy	▪ 12-14 Repeat every 1-3 years ▪ Yes(polyp burden, histology+ From age 25
▪ Gastroscopy ▪ Screening for hepatobelastoma	▪ Not recommendedColonoscopy at age 12-14 years
▪ Bilateral/multiple CHRPE lesions	

Prenatal/preimplantation dignosis

- In case of a known mutation in a family:
  1. prenatal diagnosis can be performed
  2. preimplantation

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Gardner syndrome

- FAP+
- osteoma
- Soft tissue tumors : epidermoid cysts

Turcot syndrome

- FAP+
- Malignant tumor of the central nervous system typically medullobelastoma

Attenuated FAP

- Milder form of the FAP
- 8%
- Fewer adenomas
- Later presentation

Adenomatous	Hamartomatous
▪ Familial adenomatosis Polyposis	▪ Juvenile polyposis syndrome
▪ Gardner syndrome	▪ Peutz-jeghers syn
▪ Turcot syndrome	▪ PTEN hamartoma tumor syn
▪ Attenuated FAP	

Single juvenile polyp

- Look for – family history of GI polyps , cancer , HHT
- No need to repeat colonoscopy routinely

Juvenile polyposis syndrome

- Diagnosis by any of the following :
- 1. five or more JPs of the colon
- 2.JPs in other parts of the GI tract
- 3.any number of JPs and a positive family history

- Autosomal dominant
- Up to 60% - BMPR1A or SMAD4 mutations
- Association of SMAD4 : Hereditary Hemorrhagic Telangiectasia.

- Presentation age: 2-12 yr
- Always symptomatic.
- Rectal bleeding. Prolapse, abdominal pain, intussuceptions.

- High risk for GIT cancer
- Rare incidence of CRC < 20 years
- Cumulative lifetime risk of CRC :38-68%
- Gastric cancer 9-50%

Treatment

- Endoscopic screening and polypectomy
- No rol for chemoprevention
- Surgery only due to histopathology and burden of polyps.

Test	When
• Geneting testing	• From the age 12-15 yr
• Colonoscopy	• From the age 12-15 yr annual colonoscopyyntil polyps free reapeated every 1-5 yr
• Upper GI endoscopy	• Not required unless anemia or upper GI symptoms
• HHT evaluation	• SMAD4 mutation
• Colectomy	• High burden of polyps, anemia, hypoalbuminemia
• Single juvenile polyps	• Not required

Juvenile polyposis of infancy

- A specific variant of JPs.
- Onset in infancy.
- Anemia, hemorrhge, diarrhea, protein-losing entropathy, intussuception
- Fulminant: colectomy

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Peutz-jeghers syndrome

- The PJ polyp is a hamartoma whith smooth muscle prolifaration

- Clinical dignosis of PJS:
  ≥2 histologically confirmed PJS polyps
  ≥1 PJS polyps with a family history of PJS
  ≥1 PJS polyps whit mucocutaneous pigmentation
  Mucocutaneous pigmentation and family history of PJS
- Autosomal dominant
- 90% of patients have mutation STK11

- Melanotic macules- face, buccal mucosa, genital and perianal
- It appears before GI polyp occur.
- It can fades after puberty

- Symptoms- abdominal pain, intussusception, anemia, GI bleeding
- Polyps: small intestin >> colon
- Recurrent intussusception
- Cancer risk- GI and extraintestinal(breast, gonadal, pancreas)

Treatment

- Annual upper+ lower endoscopy
- Small bowel imaging
- Intraoperative enteroscopy or double ballon entroscopy

Test	when
• Geneting testing • Colonoscopy • Upper GI endoscopy • VCE • Lip and mucosal frechling	• From age of 3 years • No later than age 8 years • Annual colonoscopy until polyps free • Repeated every 3 years
• Intussusception • Polyp	• Geneting testing • Surgical reduction
• cancer	• Remove polyps > 1.5 to 2 cm in size • Double- balloon entroscopy • Imtraoperative entroscopy • Look for setoli cell tumors

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PTEN Hamartoma tumor syndrome

- More extraintestinal features than intestinal polyposis.
- PTEN mutation (50-80%)

  cowden syndrome

Bannayan-rilet-ruvalcaba syndrome

Cowden syndrome

- Rarely presents in chilhood
- Macrocephaly, skin
- 40% have symptomatic Gi polyps
- Glycogenic acanthosis bof the esophagus
- Breast, thyroid, kidnycancer

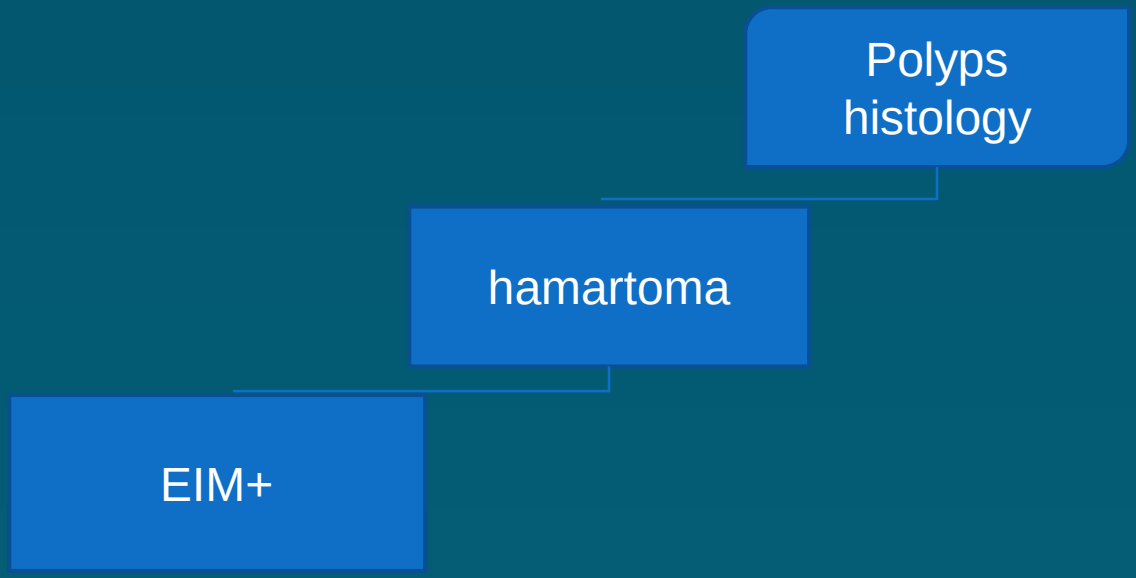
Bannayan-rilet-ruvalcaba syndrome

- Rectal bleeding, intussusception, and hypoalbuminemia.
- Macrocephaly, developmental delay
- Skeletal deformities, genital pigmentation

Polyps histology

Polyps histology

hamartoma


Polyps histology
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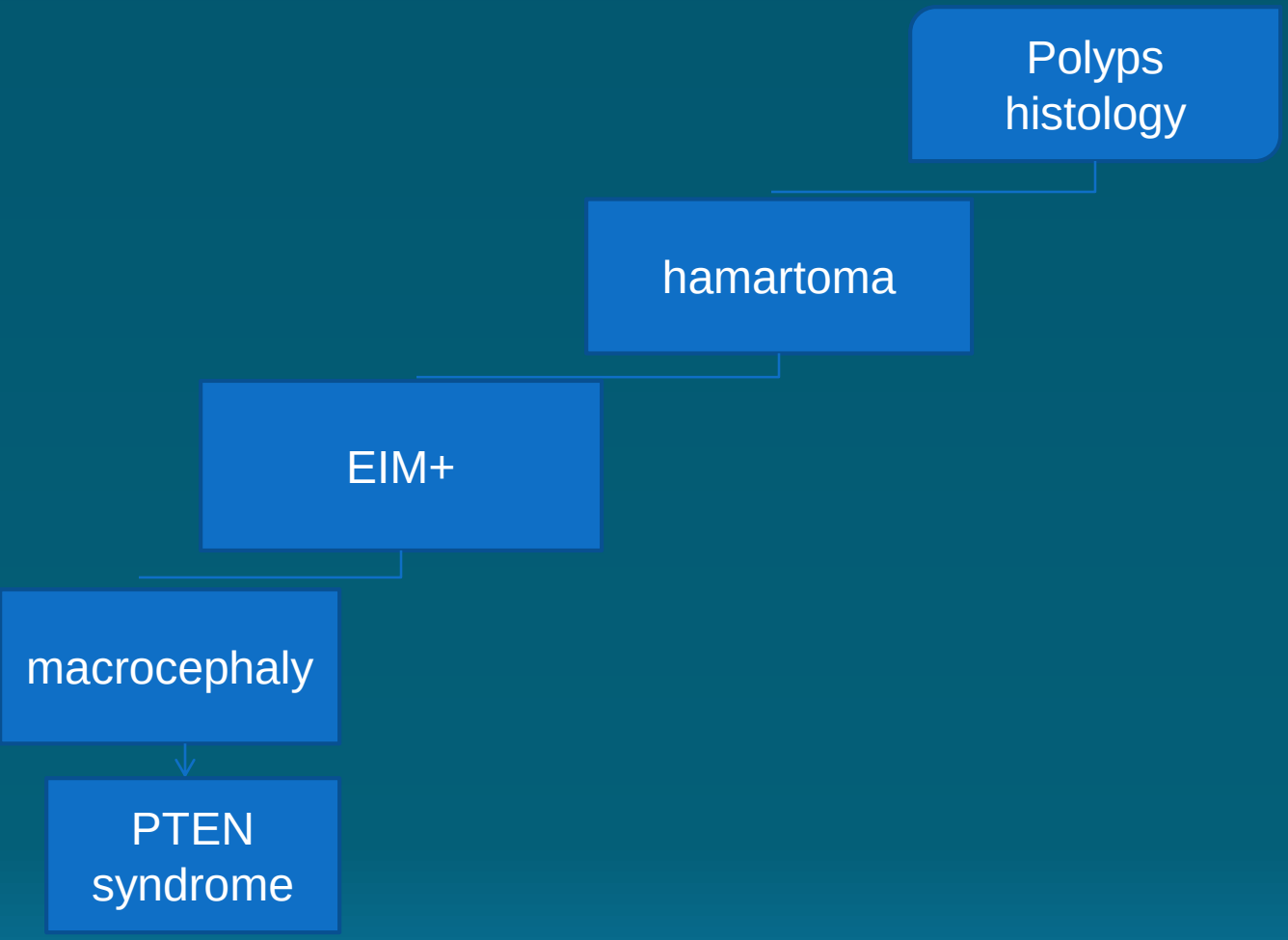
Polyps histology
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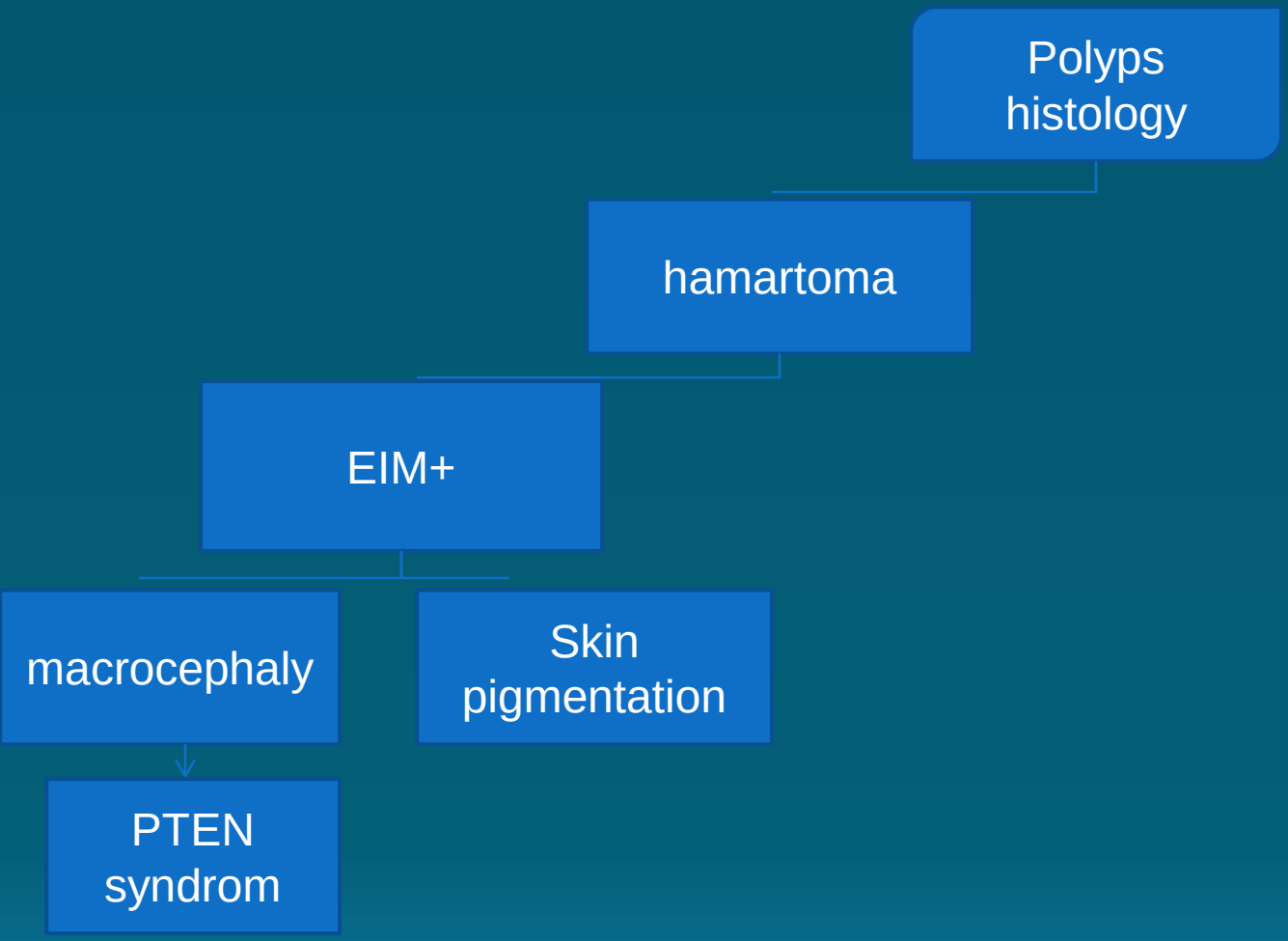
macrocephaly
PTEN syndrome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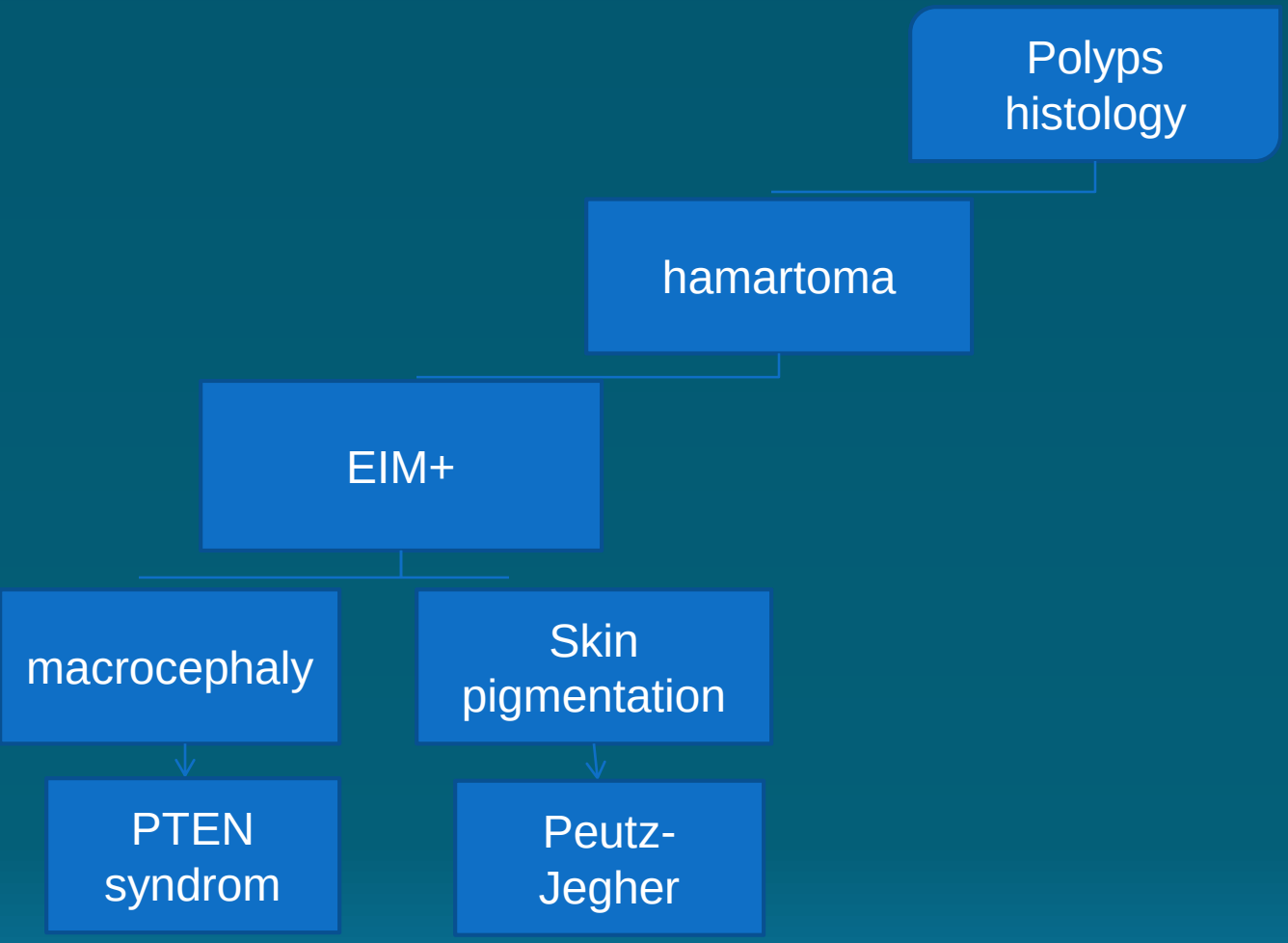
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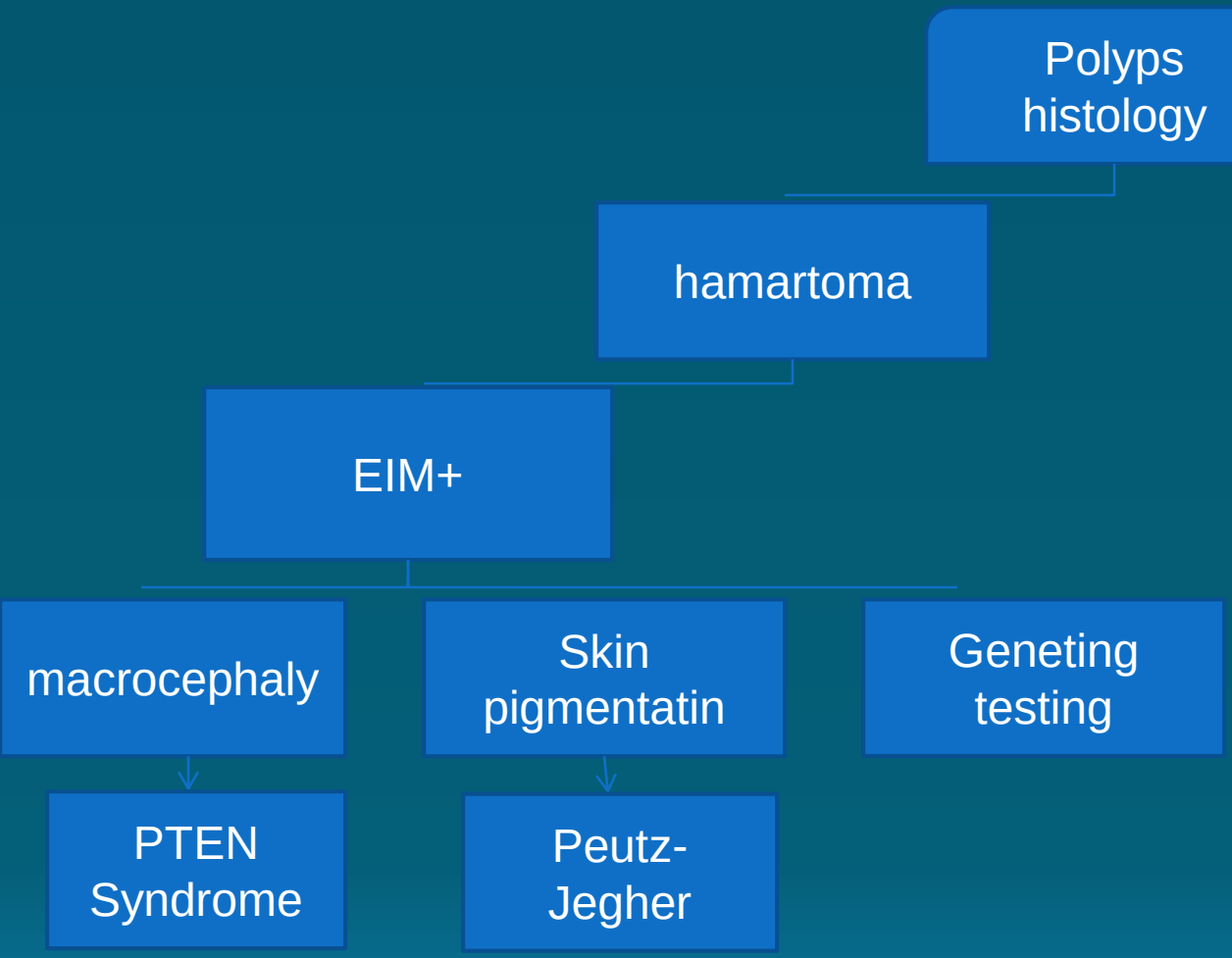
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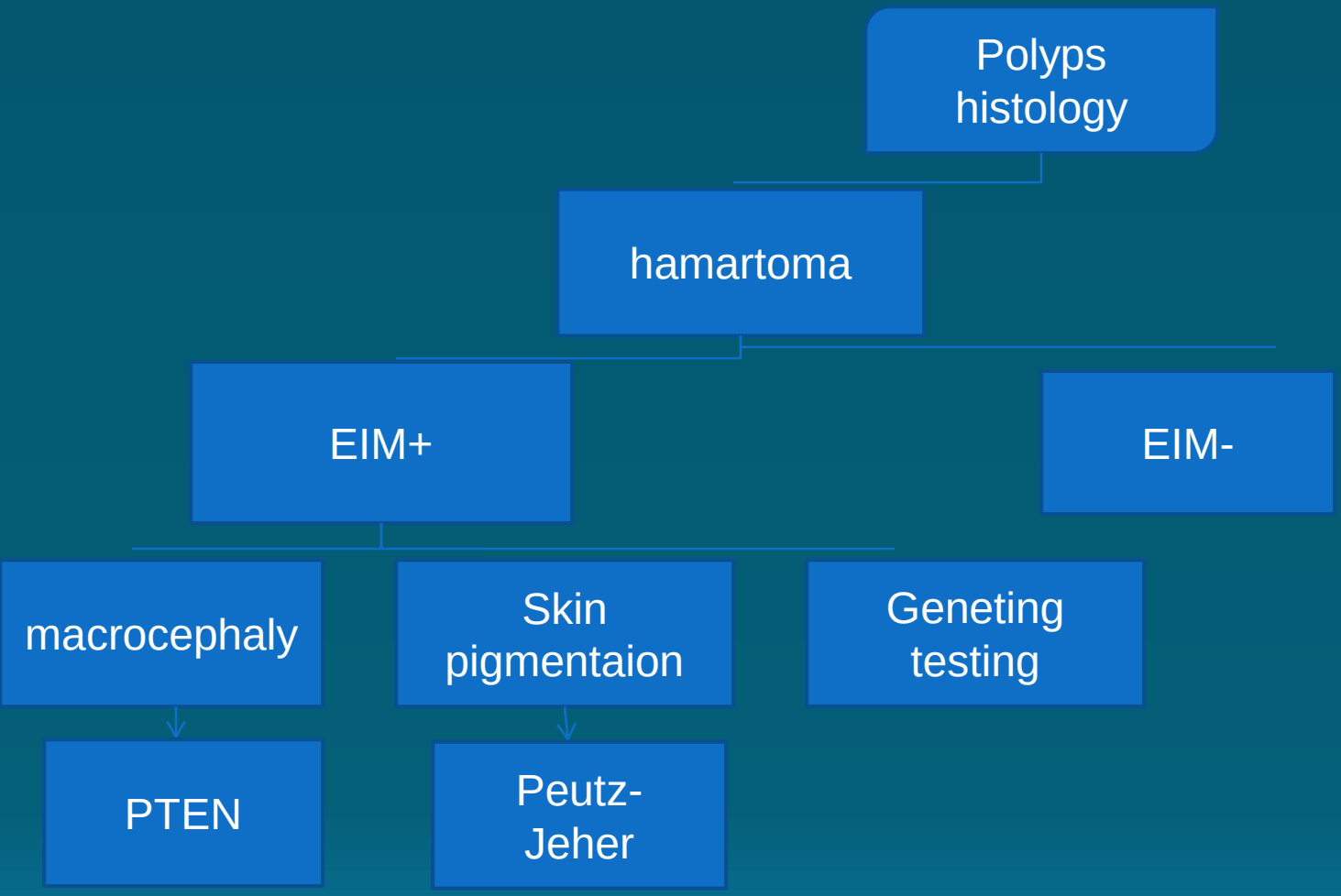
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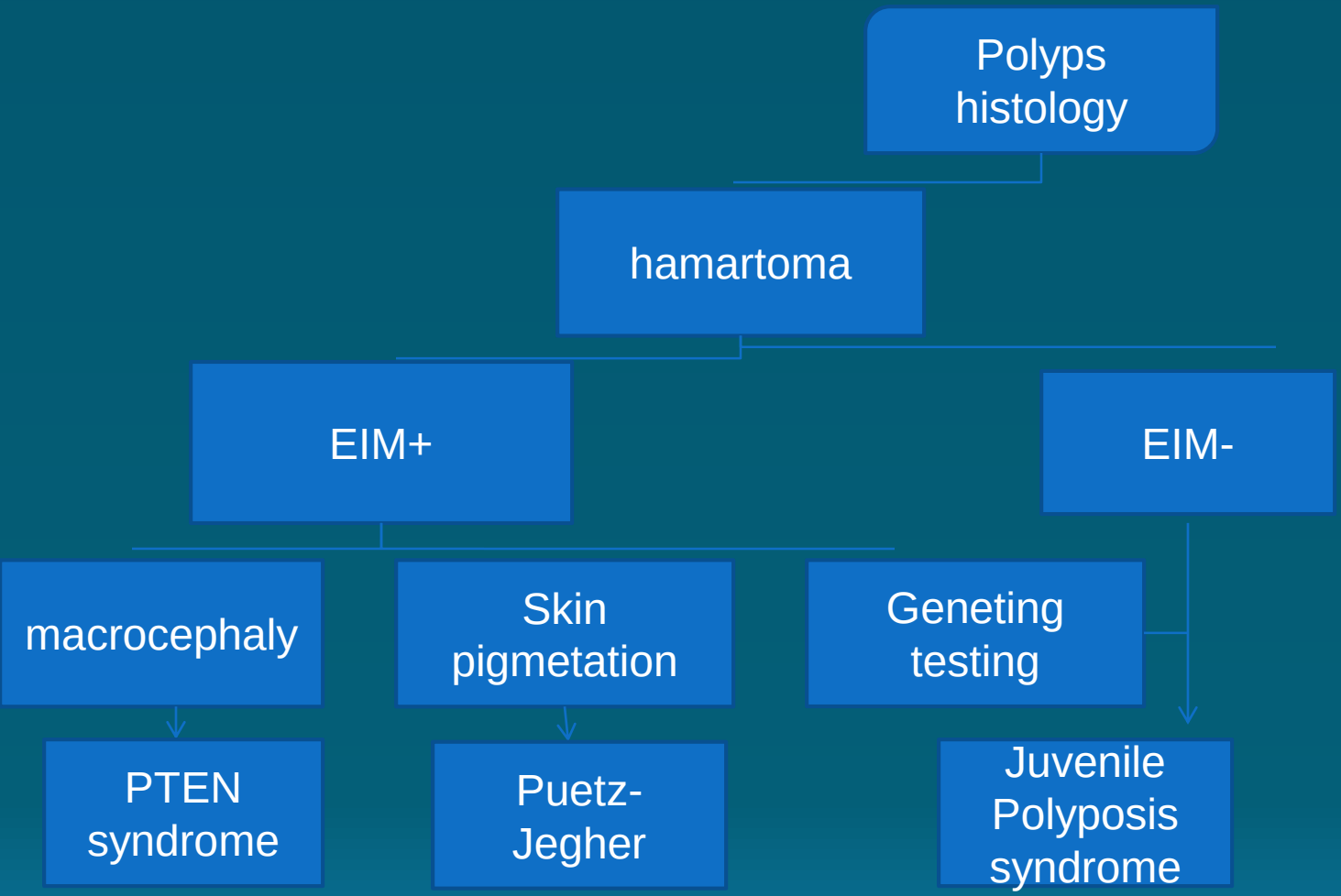
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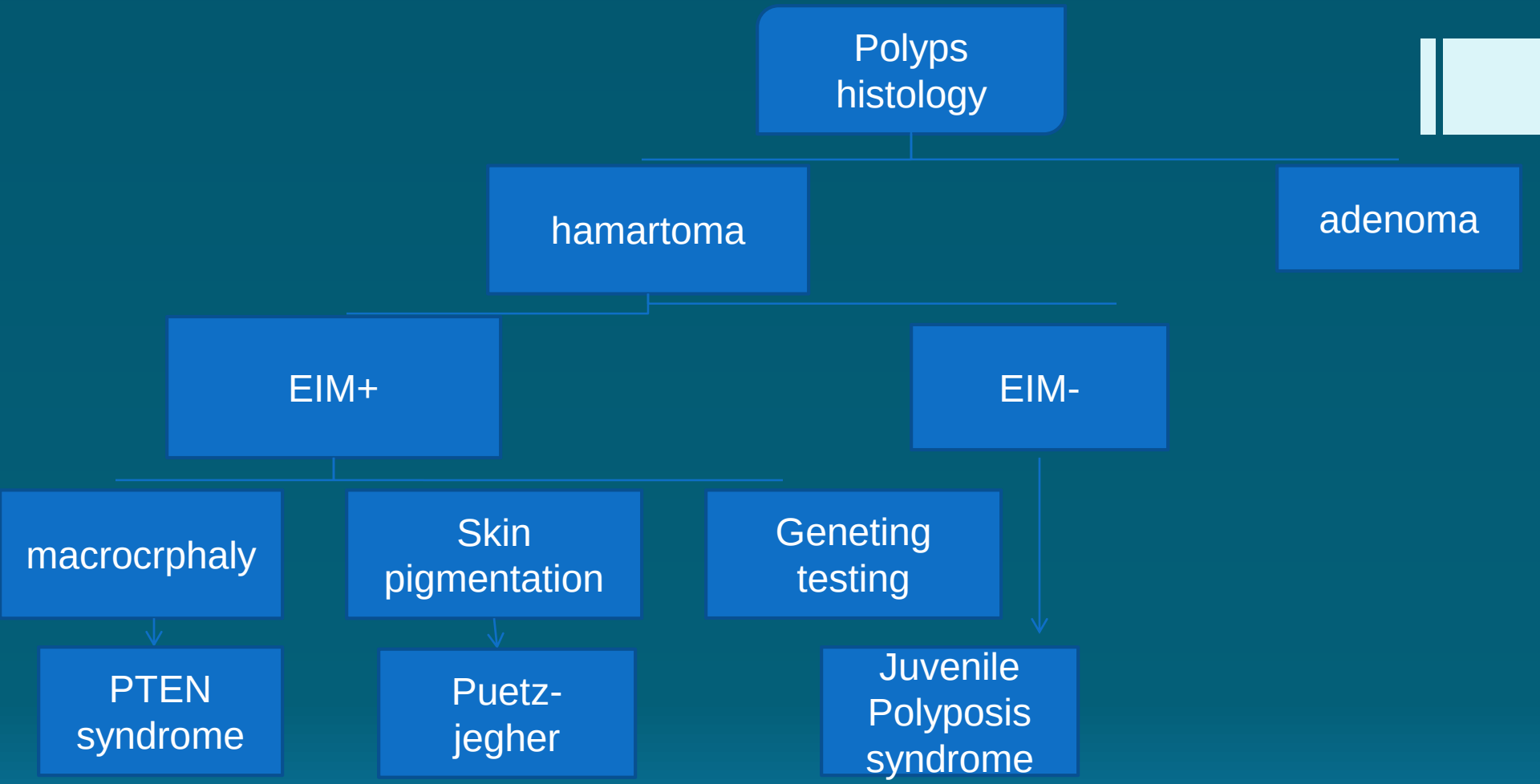
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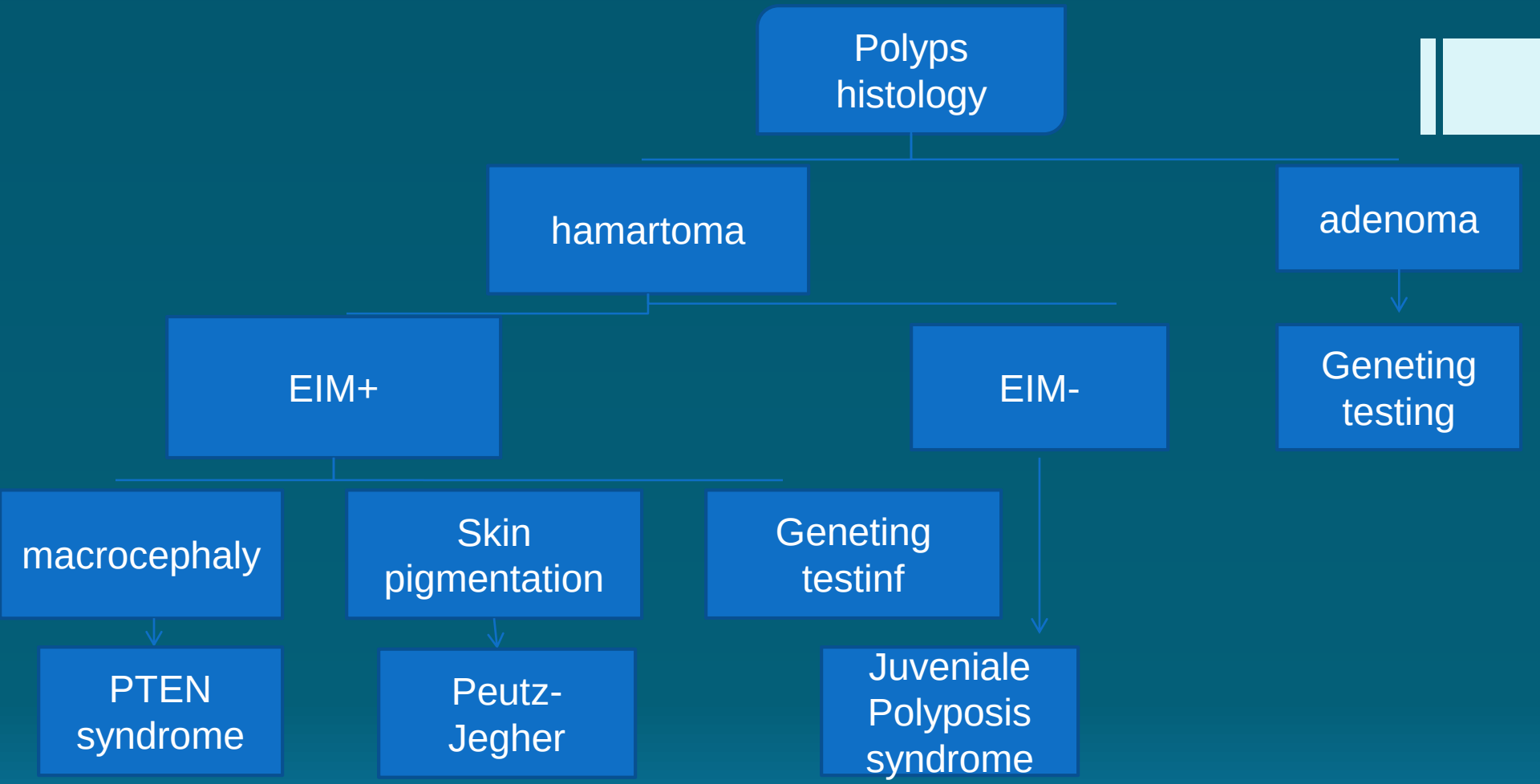
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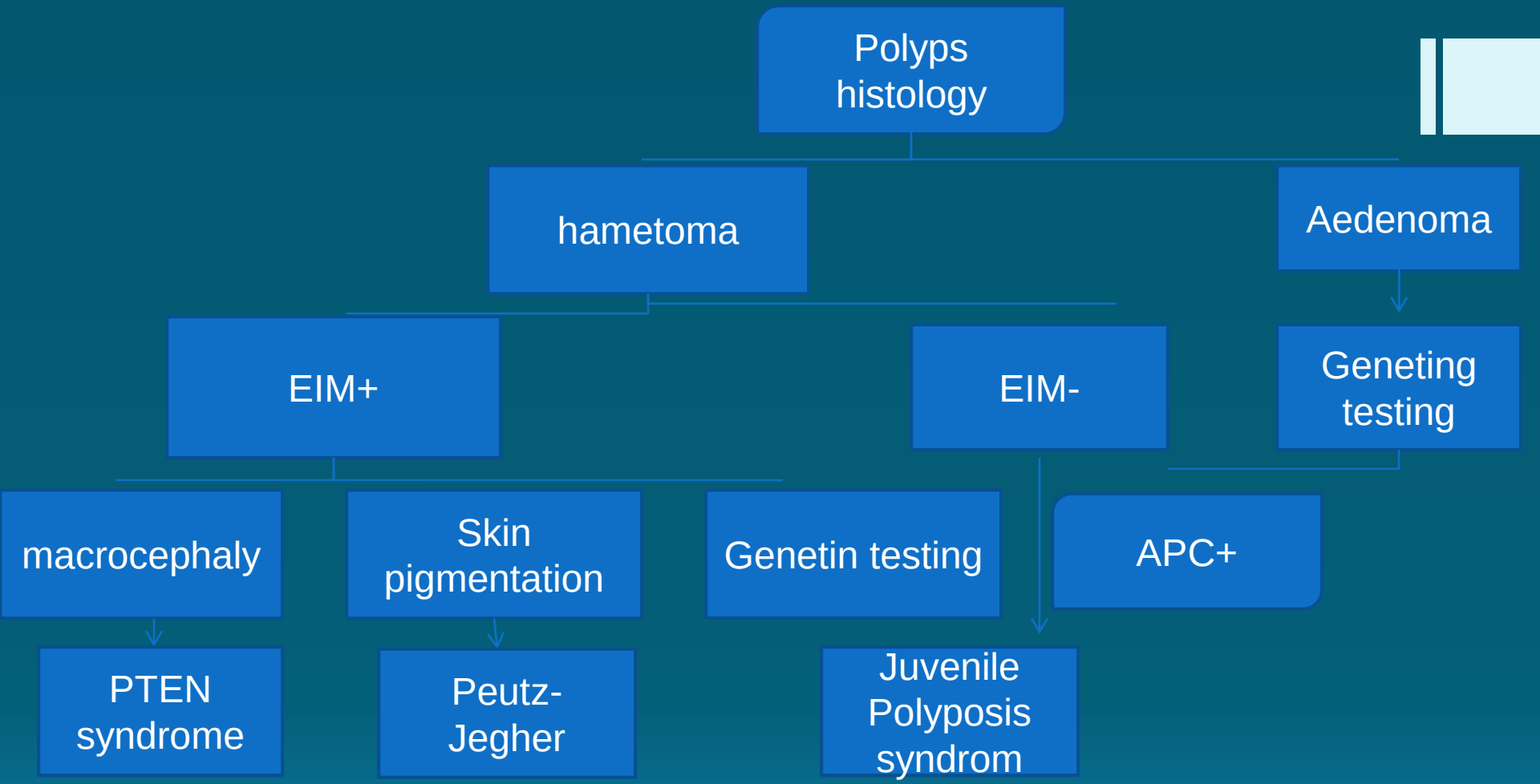
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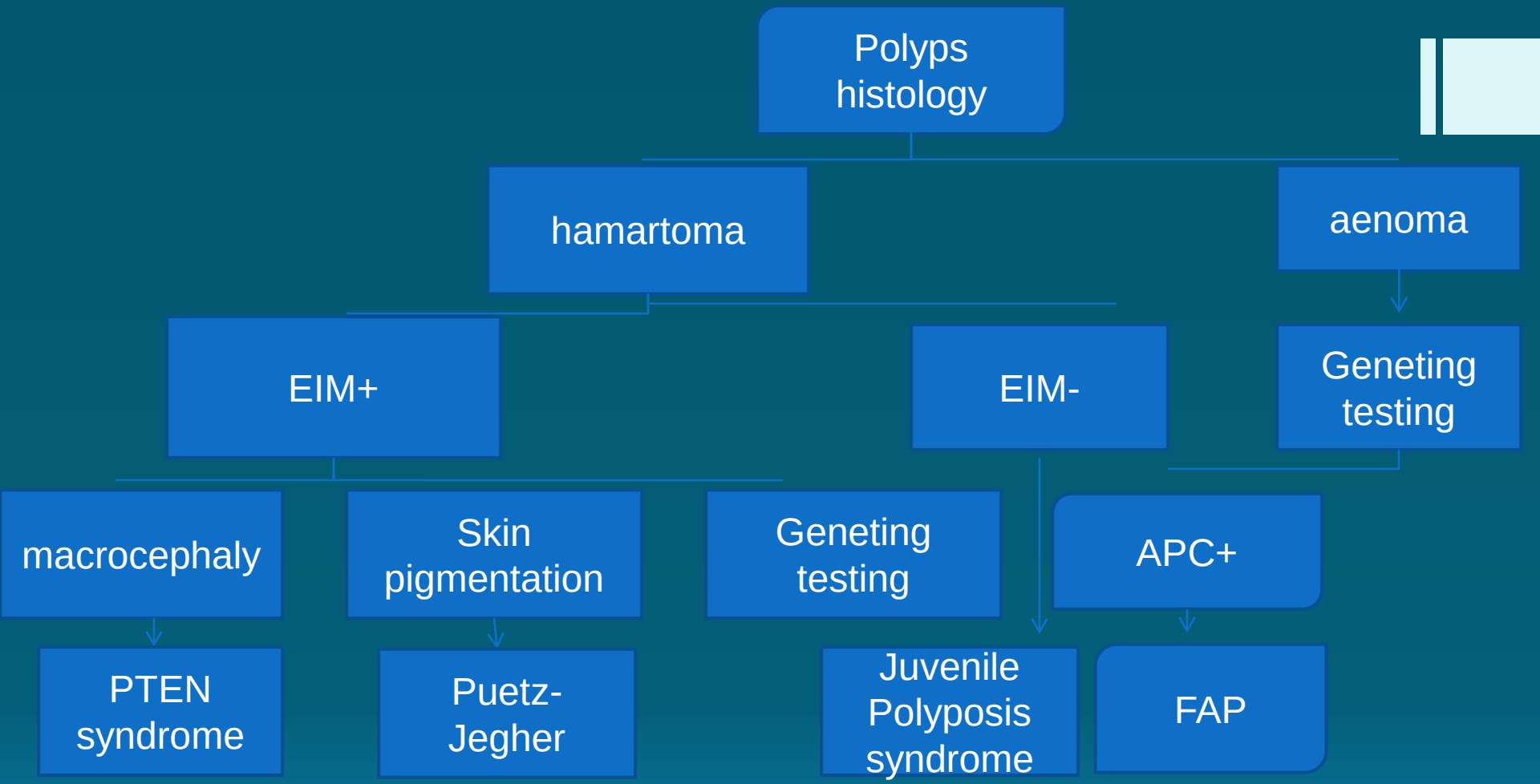
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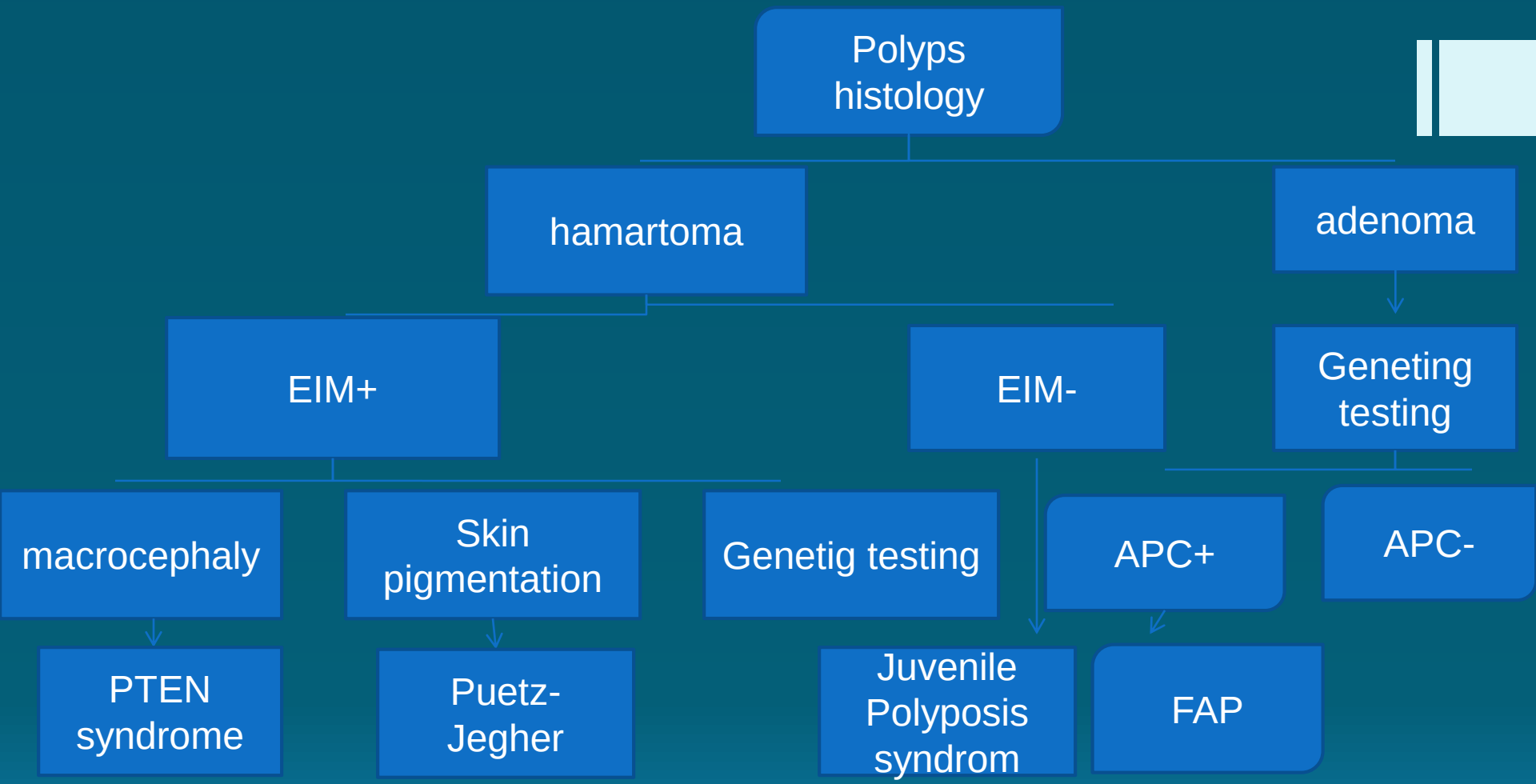
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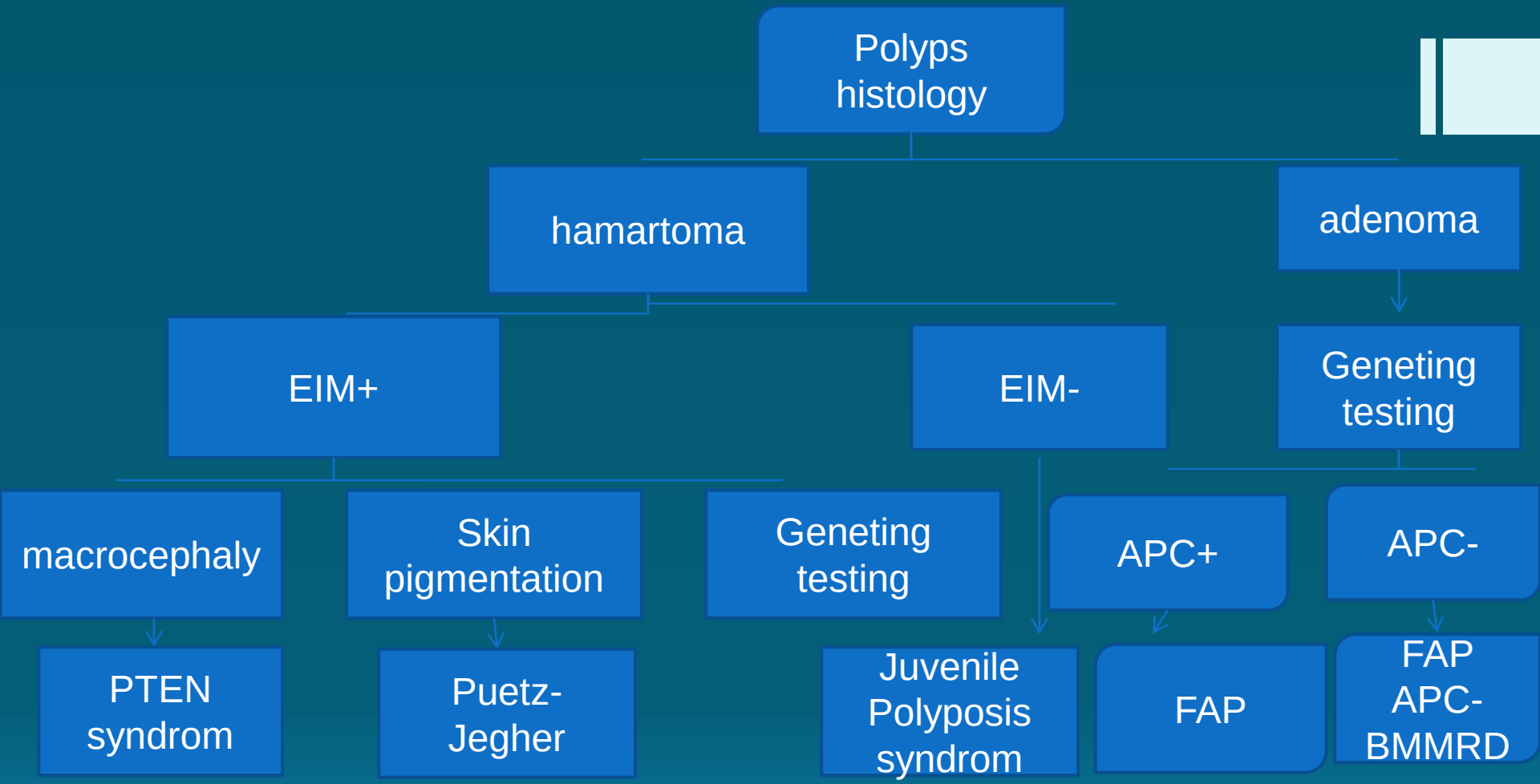
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FAP APC-BMMRD

Thank you for your attention