

# Post-traumatic hypopituitarism caused by pituitary stalk transection

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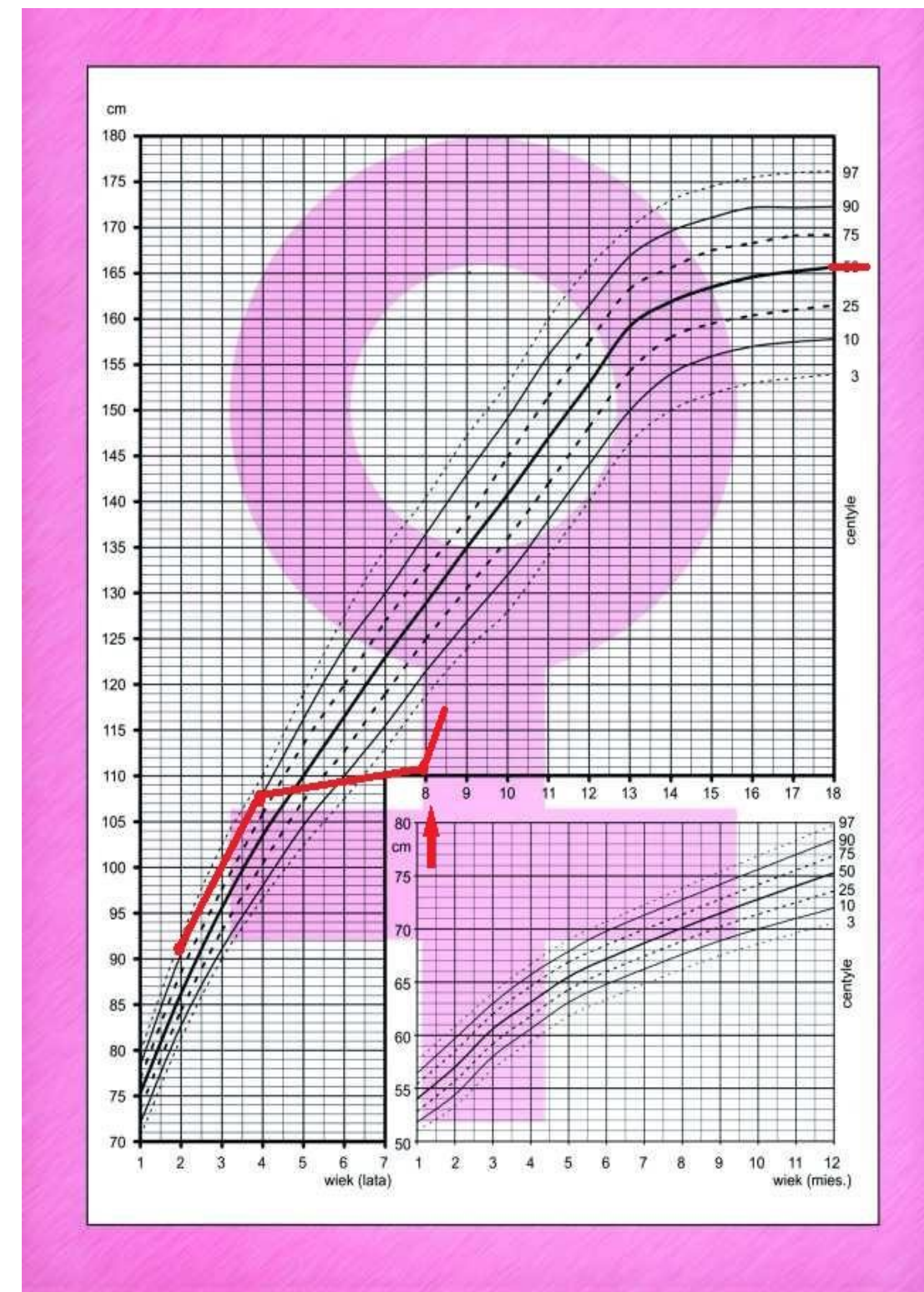
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## Objectives:

Common cause of hypopituitarism is congenital, genetically determined abnormality called pituitary stalk interruption syndrome (PSIS). It is characterized by hypoplastic anterior pituitary gland with thin or absent infundibulum and ectopic posterior pituitary location in MRI examination. Post-traumatic hypopituitarism may mimic this image.

## Case report :

Age: 7 years 10 months



**Cause of admission:** Hypoglycemia not responsive to the infusion of glucose (lowest value 25mg/dL)

**History:** at the age of 3 years and 10 months severe head trauma after being hit by a swing. CT of the head revealed basilar skull fracture, cerebral edema, subarachnoid hemorrhage. For few days in medically induced coma and treated with desmopressin because of transient diabetes insipidus.

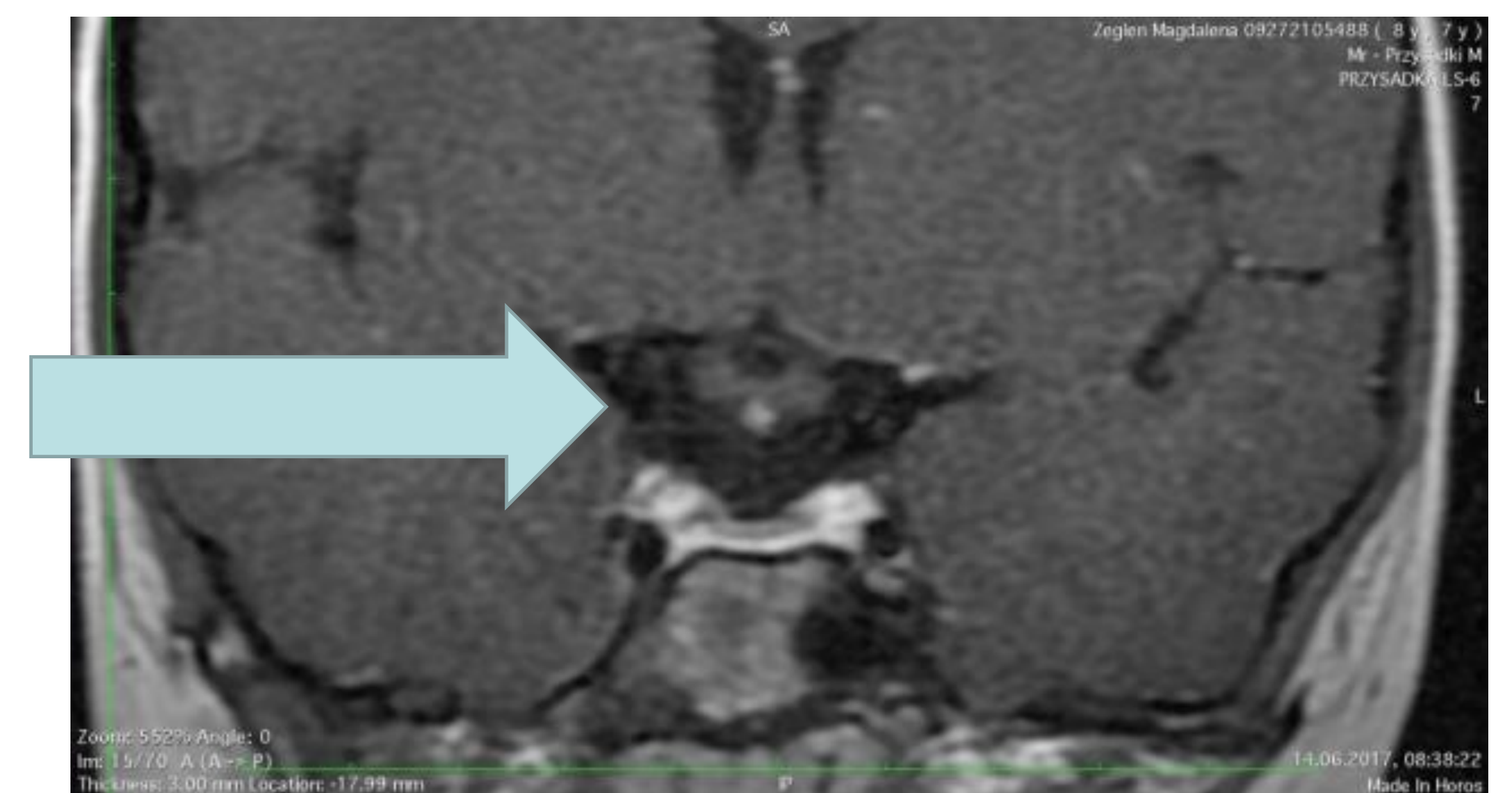
**Clinical presentation:** skin pallor, orthostatic hypotension short stature with body weight appropriate for the height ; no signs of sexual maturation (thelarche I, pubarche I according to the Tanner scale, axillary hair absent).

Laboratory results: fT4: 6.6 pmol/l N:10-25, TSH 2.89 uIU/ml N:0.3-4.0, fT3: 1.8 pmol/l N:3.0-8.1 → **SECONDARY HYPOTHYROIDISM**

GH: 0.13 ng/ml during hypoglycemia; max. 0.49 ng/ml in stimulation tests, IGF1 27.1 ng/ml N:59-97 → **GROWTH HORMONE DEFICIENCY**

morning cortisol 44.8 ng/ml N: 50–230, ACTH 5.3 pg/ml N: 10–60, max. cortisol in glucagon stimulation test 55.5 ng/ml, low serum sodium levels 135 mmol/l N:135-145 → **SECONDARY ADRENAL INSUFFICIENCY**

Magnetic resonance imaging of the pituitary gland showed disruption of the pituitary stalk with hiperintense signal of hyperintense signal of distal axon of the hypothalamus infundibulum, hypoplastic anterior and ectopic posterior pituitary gland.



Follow up:

The introduction of multiple hormonal replacement therapy (hydrocortisone, L-thyroxine, human recombinant GH) caused resolution of hypotonia and hypoglycemia and normalization of the general condition and growth of the child (GV=16cm/year).

## Conclusions:

Head trauma followed by biochemical or somatic symptoms of pituitary insufficiency together with hyperintense signal of distal axon of the hypothalamus suggest traumatic stalk transection with secondary hypoplasia of anterior pituitary gland. In every case of severe traumatic head injury hormonal evaluation and MRI of hypothalamic-pituitary axis should be performed.