# A case of Dubowitz syndrome with growth hormone deficiency

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**ABSTRACT**

**Background:** Dubowitz syndrome is a rare multiple congenital syndrome with unknown etiology, characterized primarily by growth retardation, distinctive facial dysmorphism, cutaneous eczema, microcephaly, intellectual deficit, skeletal and genital abnormalities, abnormal hematological and endocrinal findings, and other systemic affections.

**Case Presentation:** We report the case of a 3-year-old male patient presenting with repeated chest infections, failure to thrive, history of low birth weight, and seasonal skin allergies. Examination revealed abnormal facial features and skeletal and genital abnormalities along with delays in social development. Cardiac echocardiography showed atrial septal defect and ventricular septal defect. Blood tests revealed low growth hormone levels, and a clonidine stimulation test confirmed growth hormone deficiency.

**Conclusion:** Careful examination of the patient leads to the diagnosis of Dubowitz syndrome and growth hormone deficiency. The combination of these two findings has rarely been reported before, but patients may get the benefit of testing for growth hormone deficiency to receive proper treatment.

**Keywords:** Case report, Dubowitz syndrome, short stature, low birth weight, rare disease.

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**Type of Article:** CASE REPORT **Specialty:** Pediatrics

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**Declaration of conflicting interests:** The authors declare that there is no conflict of interests regarding the publication of this case report.

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## Background

Dubowitz syndrome is one of the rarest diseases with about 200 patients reported since it was first described in 1971 [1]. The etiology of Dubowitz syndrome has not been evidently elucidated, and the diagnosis is based on multiple clinical manifestations which include a low birth weight with a small head and body size, abnormal facial appearance with narrow- or triangular-shaped head and high or sloping forehead, flat supraorbital ridge, scanty lateral eyebrows, short palpebral fissures, blepharophimosis, ptosis, abnormally modeled ears, broad and flat nasal bridge, micrognathia and unusual configuration of the mouth, submucous cleft palate, cutaneous eczema, high-pitched or hoarse voice, hypospadias, and cryptorchidism [1–3].

Skeletal abnormalities in Dubowitz syndrome include sacral dimple and clinodactyly (5th fingers), with cutaneous syndactyly of the toes or fingers. The intellectual deficit is mostly mild to moderate. Furthermore, a variety of ocular and dental abnormalities, such as hyperopia, cataracts, tapetoretinal degeneration, strabismus and taurodontia, anodontia/hypodontia, or hyperdontia, have been reported. Behavioral characteristics may include hyperactivity with short attention span, impulsivity, and shyness [1–3].

The spectrum of manifestations of Dubowitz syndrome may also comprise of hematological (aplastic anemia) and congenital heart defects, frequent infections, chromosomal instability, and development of malignancies, for example, acute lymphoblastic leukemia or neuroblastoma [1–3].

## Case Presentation

A 3-year-old male patient presented to the outpatient clinic with a history of repeated chest infections and failure to thrive. The history revealed low birth weight, seasonal skin allergies, and allergy to vancomycin. He was an only child from a nonconsanguineous marriage.

Clinical examination revealed a narrow-shaped head, short height, low body weight, bilateral epicanthal folds with broad and flat nasal bridge, long philtrum, high forehead, large abnormal ears, high arched palate, sparse hair, pectus excavatum, hypospadias, right inguinal hernia, umbilical hernia, sacral dimple, genu valgum, short second toe, and cutaneous urticaria (Figures 1–3).

The behavioral assessment showed shyness and marked delayed language and social skill development, hyperactivity and impulsivity with parents, and urinary and fecal incontinence.

Cardiac echocardiography revealed situs solitus, levocardia, atrioventricular concordance, ventriculoarterial concordance, normal venous drainage, large atrial septal defect (ASD) about 16 mm with left to right shunt,

perimembranous ventricular septal defect (VSD) with left to right shunt, trivially closed by aneurysmal tricuspid valve tissue with gradient of about 65 mmHg across, mild-to-moderate aortic regurgitation with right coronary cusp prolapse into the VSD, dilated main pulmonary artery with trivial pulmonary regurgitation, dilated right side of the heart with good systolic function, normal left ventricle dimensions and function, left-sided aortic arch with no coarctation nor patent ductus arteriosus, normal pulmonary arteries, and no pericardial effusion (Figures 4–6).

Laboratory findings included microcytic hypochromic anemia, low growth hormone levels, and unremarkable karyotype.

The patient was referred for endocrinology consultation. A clonidine stimulation test confirmed growth hormone deficiency. He received a growth hormone supplement and was scheduled for corrective heart surgery for closure of the ASD and VSD defects.

## Discussion

Growth hormone deficiency has rarely been reported with Dubowitz syndrome [1,3,4]. The patient has been referred to endocrinology to be managed accordingly. If suspected early, all patients with similar findings suggesting Dubowitz syndrome may get the benefit of testing for growth hormone deficiency.

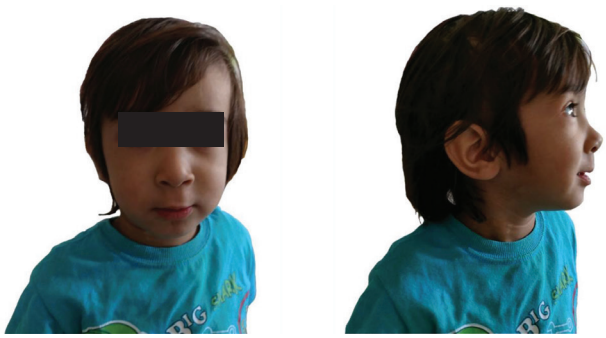


***Figure 1.*** *Facial features.*

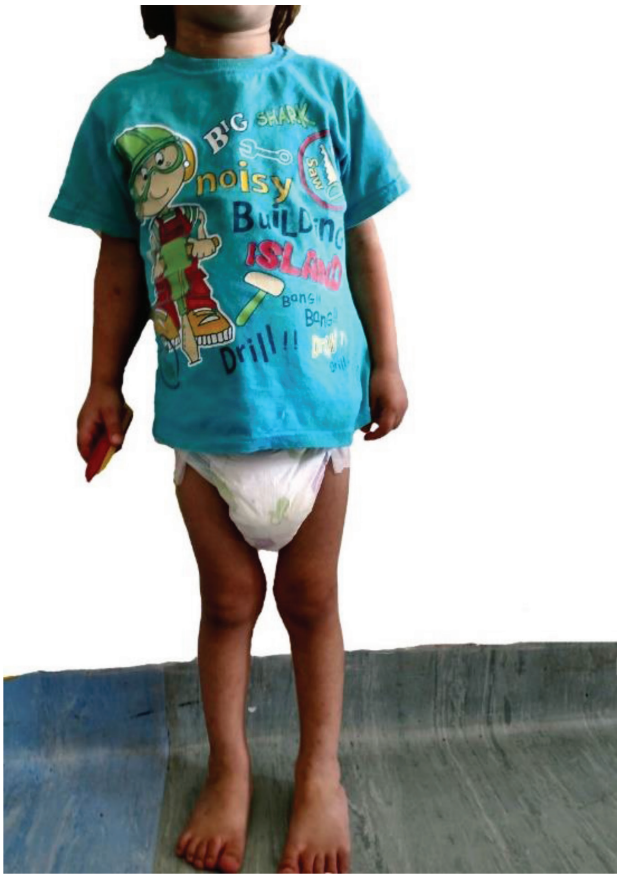
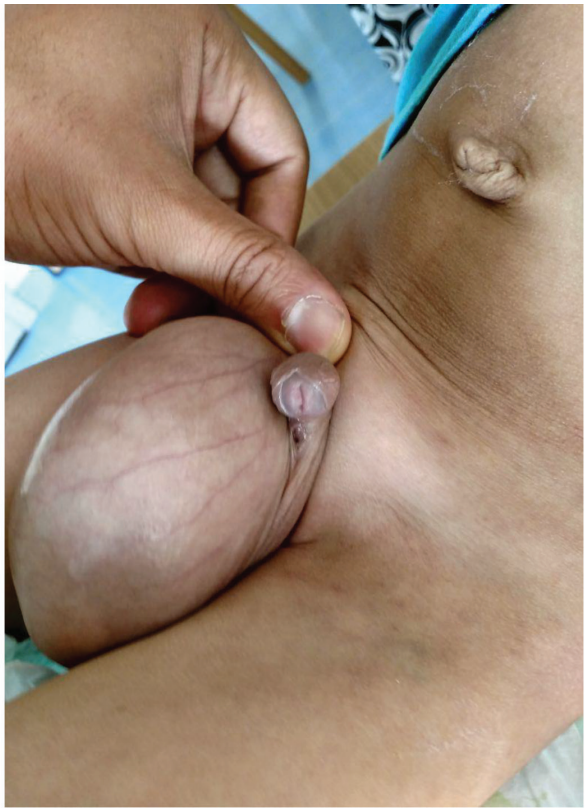



***Figure 2.*** *Stature, genu valgum and visible urticarial lesions on both legs*



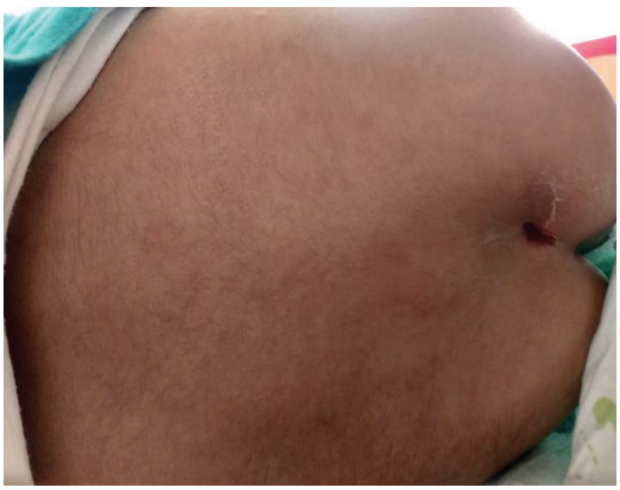


***Figure 3.*** *Top: Hypospadias, umbilical hernia and huge right inguinal hernia. Bottom: Sacral dimple.*

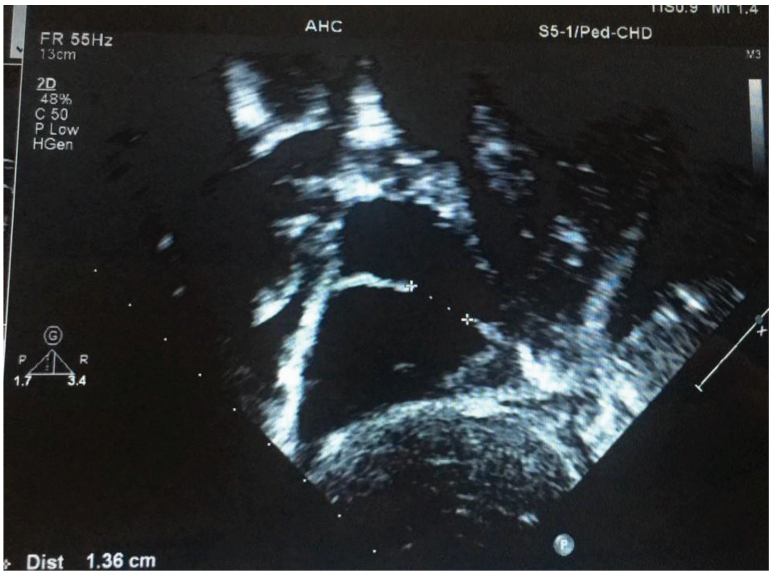



***Figure 4.*** *Echocardiography: Large atrial septal defect (ASD).*

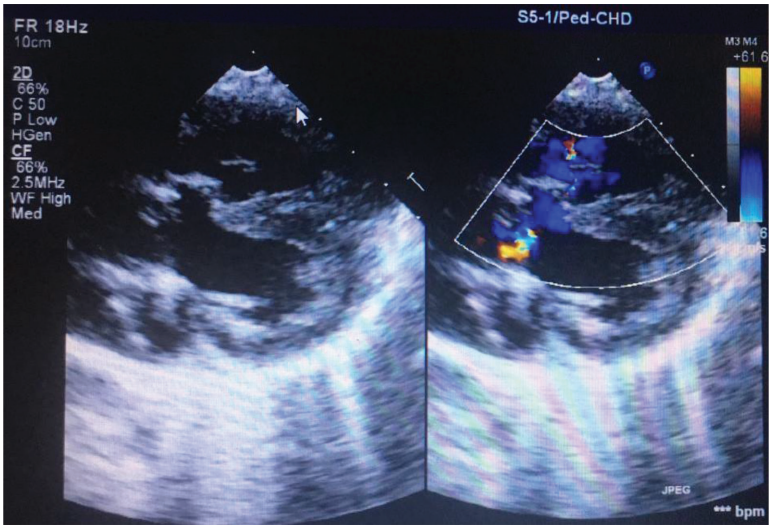



***Figure 5.*** *Echocardiography: Perimembranous VSD with aneurysmal tricuspid valve tissue.*

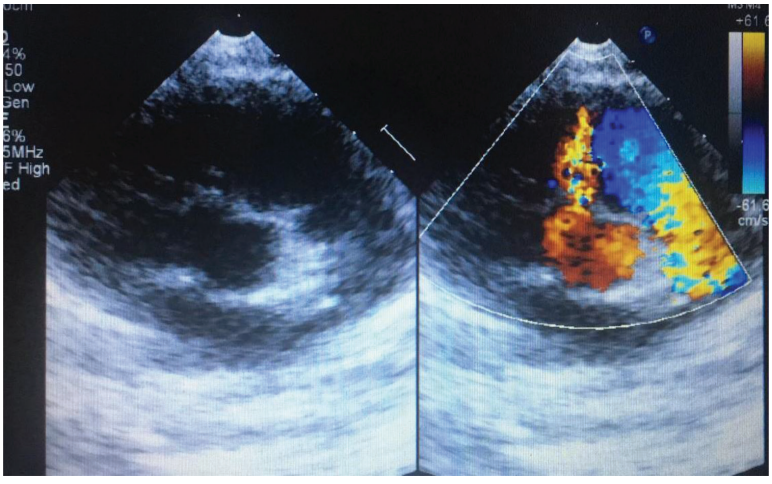


***Figure 6.*** *Echocardiography: Left to right shunt at VSD level*

## Conclusion

Careful examination of the patient leads to the diagnosis of Dubowitz syndrome and growth hormone deficiency. The combination of these two findings has rarely been reported before, but patients may get the benefit of testing for growth hormone deficiency to receive proper treatment.

### What is new?

Dubowitz syndrome is still diagnosed clinically and it has been rarely reported. Out of the rare reports, it has been extremely rare to confirm growth hormone deficiency as a cause of the characteristic short stature and low birth weight known with the syndrome.

### List of Abbreviations

ASD Atrial septal defect
VSD Ventricular septal defect

### Consent for publication

An informed consent was obtained for the tests, photographs, and data regarding this patient as it was obtained to publish these data.

### Ethical approval

Ethical approval is not required in our institute to publish anonymous case report in a medical journal.

### Author details

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### References

1. Huber RS, Houlihan D, Filter K. Dubowitz syndrome: a review and implications for cognitive, behavioral, and psychological features. J Clin Med Res. 2011;3(4):147–55. https://doi.org/10.4021/jocmr581w
2. Ballini A, Cantore S, Tullo D, Desiate A. Dental and craniofacial characteristics in a patient with Dubowitz syndrome: a case report. J Med Case Rep. 2011;5(1):38. https://doi.org/10.1186/1752-1947-5-38
3. Rasmussen SA. Online Mendelian Inheritance in Man (OMIM): Dubowitz Syndrome (223370). Available from: http://www.ncbi.nlm.nih.gov/omim/223370
4. Hirano T, Izumi I, Tamura K. Growth hormone deficiency in Dubowitz syndrome. Acta Paediatr Jpn. 1996;38:267–9.

### Summary of the case

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|---|---|---|
| 1 | **Patient (gender, age)** | Male, 3 years |
| 2 | **Final Diagnosis** | Dubowitz syndrome, growth hormone deficiency |
| 3 | **Symptoms** | Facial features, congenital heart disease, skeletal deformities, short stature, delays in social development |
| 4 | **Medications** | N/A |
| 5 | **Clinical Procedure** | Growth hormone stimulation test |
| 6 | **Specialty** | Pediatrics |