

Dandy-Walker Variant

Mikayla Heckathorn

Patient Review

❖ Basic Information

- ❖ 41-year-old
- ❖ Hispanic

❖ Medical History

- ❖ Gravida 5 Para 3 Preterm 1
- ❖ Chronic Hypertension
- ❖ Increased BMI
- ❖ Advanced Maternal Age

❖ Medications

- ❖ Prenatal Vitamin
- ❖ Labetalol-2 times a day

- ❖ Patient presented to outpatient women’s clinic at 24 weeks 0 days for her fetal anatomy scan
 - ❖ Images were noted to be suboptimal due to maternal body habitus
 - ❖ Aortic arch, 4 chamber heart, face, choroid plexus, and spine were not visualized
 - ❖ Abnormal cerebellum was seen, questioning absent or hypoplastic cerebellar vermis
 - ❖ Possible hypoplastic or absent nasal bone also noted

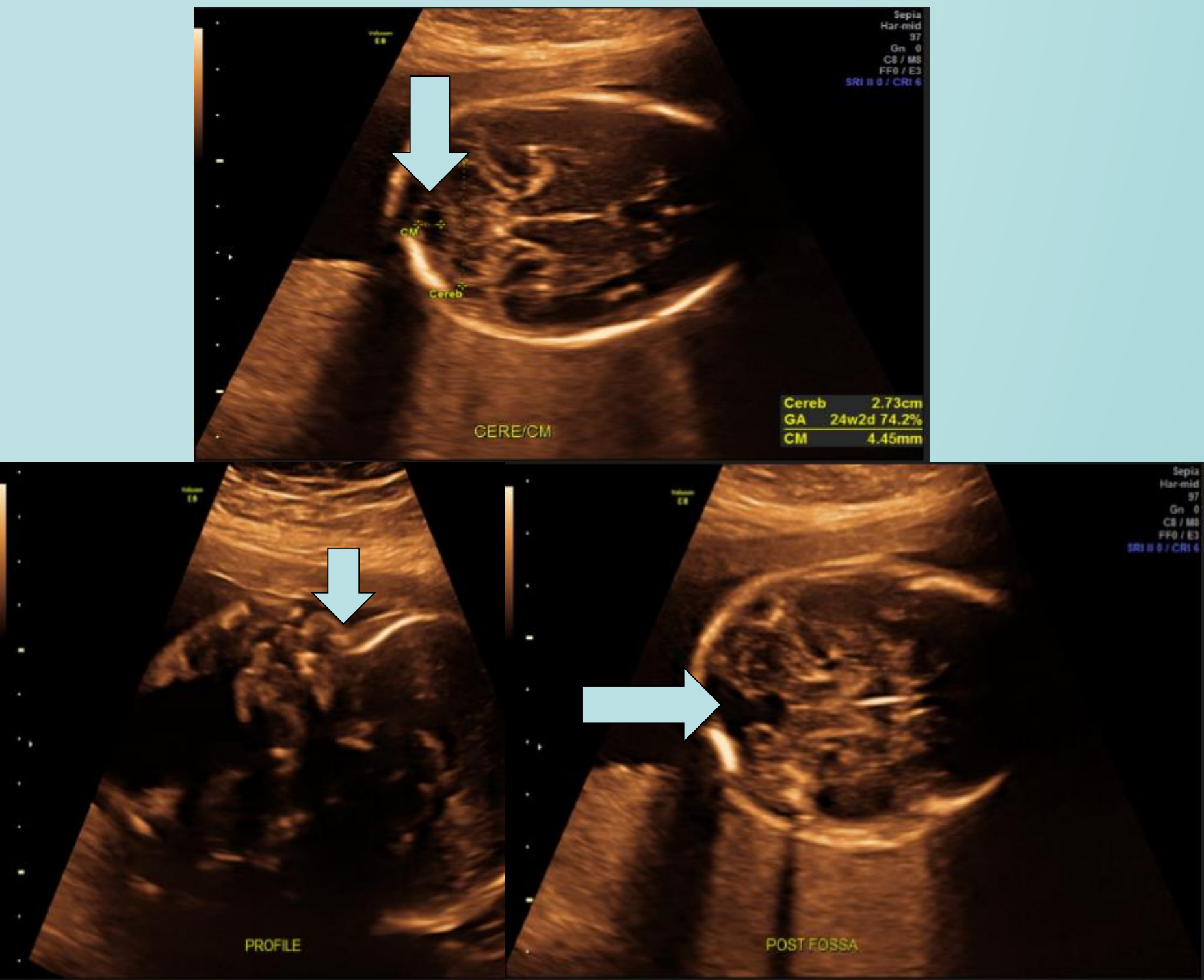
- ❖ Patient referred to a maternal fetal medicine clinic for follow up. A detailed fetal anatomy scan and fetal echocardiogram were performed.
 - ❖ Based on the images taken there was an abnormal cerebellum, suspect for Dandy-Walker Variant. There was also an absent or hypoplastic nasal bone.
 - ❖ IUGR was suspected with estimated fetal weight in the fifth percentile, abdominal circumference in seventeenth percentile.
 - ❖ Fetal echocardiogram was normal
 - ❖ Based off maternal age and absent or hypoplastic nasal bone Down Syndrome is suspected.

Risk Factors

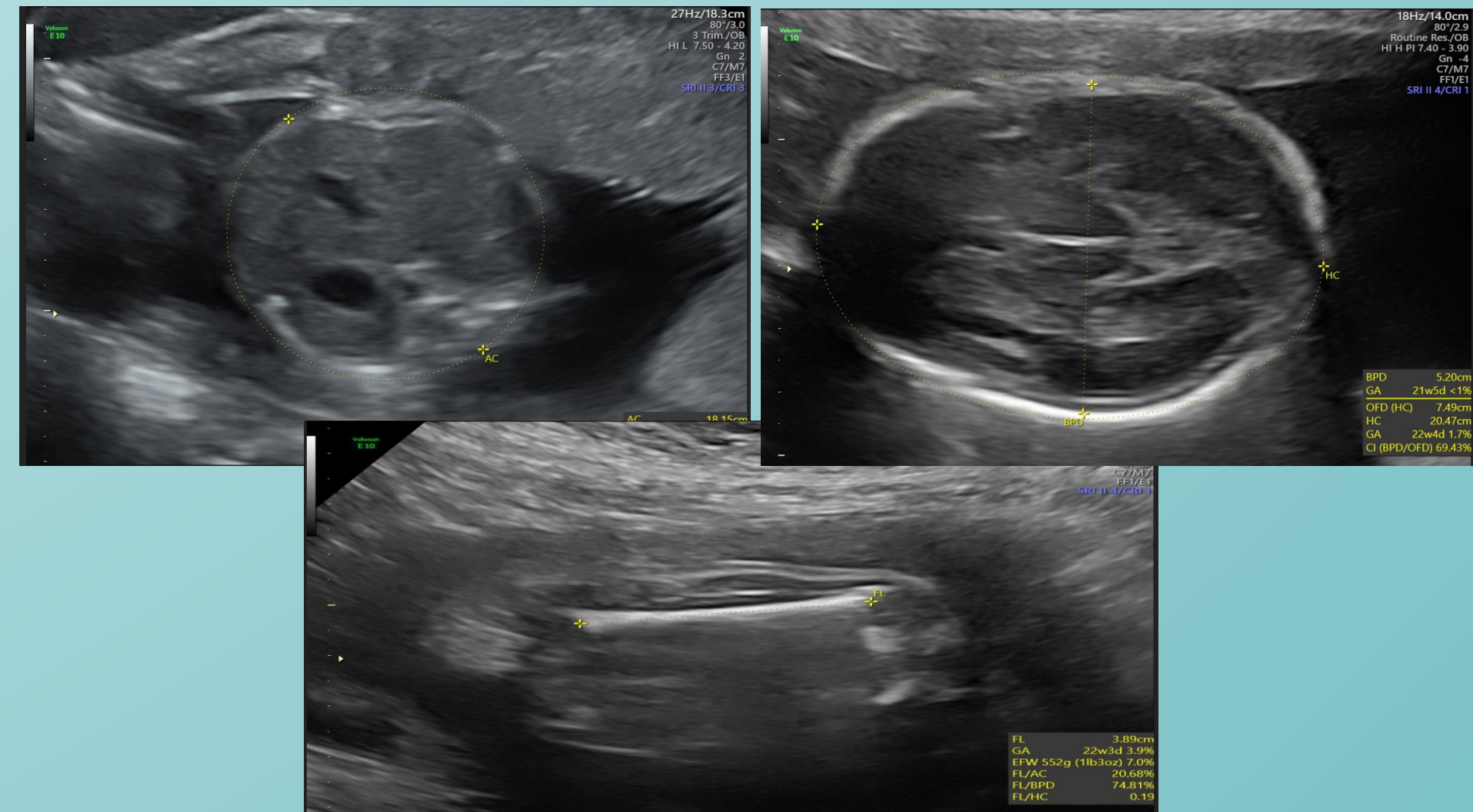
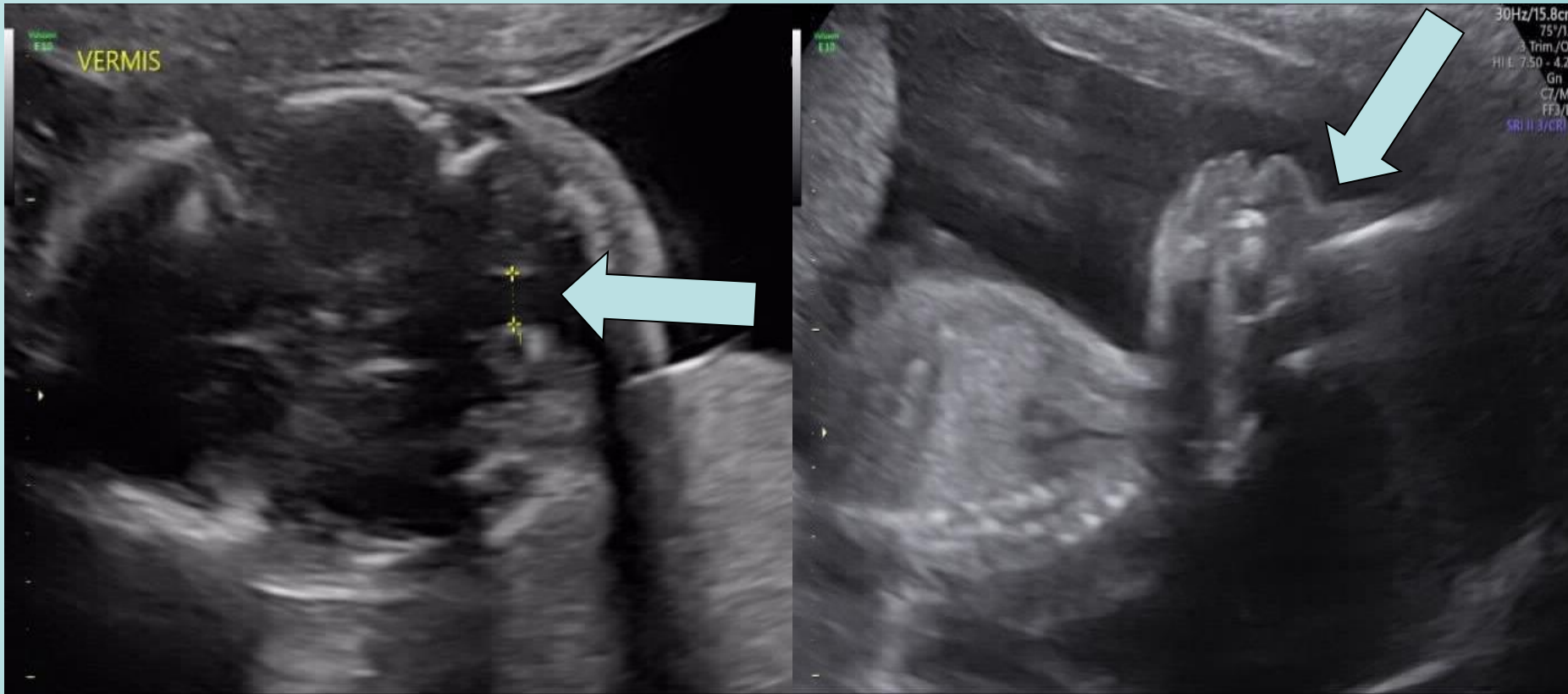
- ❖ Association with chromosomal abnormalities
- ❖ Advanced maternal age
- ❖ Female (Fetus)
- ❖ Non-Hispanic

Diagnosis

- ❖ Testing done for diagnoses in this case:
 - ❖ Fetal anatomy ultrasound-Routinely done around 20 weeks gestation to assess the fetus for abnormalities and growth
 - ❖ Detailed fetal anatomy ultrasound-Very similar to the 20-week scan but looks at more of the baby in detail
 - ❖ Fetal echocardiogram-Focused only on the heart and branches off the heart
 - ❖ Fetal dopplers-Dopplers commonly taken in the umbilical arteries, the ductus venosus, MCA in the fetal brain
 - ❖ Biophysical profiles-fetal well being check for tone, movement, practice breathing
 - ❖ MaterniT-21 Testing- Blood test that will show positive or negative for Trisomy 13, Trisomy 18, Trisomy 21, and sex chromosome aneuploidies.
 - ❖ CT, MRI may be used as well



Ultrasound images from the maternal fetal medicine clinic. Left measuring the defect in the cerebellum. Right showing the absent or hypoplastic nasal bone.



Pathological Progression

- ❖ Complete development of cerebellum does not happen until 19th week gestation
- ❖ Dandy-walker complex presents with enlarged posterior fossa, dilation of forth ventricle, hypoplastic or absent cerebellar vermis
- ❖ Macrocephaly common

Pathogenesis

- ❖ Hypoplasia or absence of the cerebellar vermis with dilation of the 4th ventricle
- ❖ Etiology unknown
 - ❖ Potentially genetic
- ❖ Dandy-walker is a complex
 - ❖ Dandy-walker malformation
 - ❖ Dandy-walker variant
 - ❖ Mega Cisterna Magna
 - ❖ Posterior fossa arachnoid cyst
- ❖ Dandy-walker variant
 - ❖ Less severe than DWM
 - ❖ Cerebellar defect-inferior portion
 - ❖ Enlarged fourth ventricle
- ❖ Dandy walker malformation
 - ❖ Most common malformation of the cerebellum
 - ❖ Most severe form of the complex
 - ❖ Abnormal cisterna magna
 - ❖ Cerebellar defect
 - ❖ Enlarged fourth ventricle

Treatments

- ❖ Depends on severity
- ❖ Dandy-walker variant highest survival rate
- ❖ Hydrocephally can be treated with shunt
- ❖ Mental impairments
 - ❖ Physical therapy
 - ❖ Occupational therapy
 - ❖ Speech therapy

References

Harper, T., Fordham, L.A., & Wolfe, H.M. (2007). The fetal dandy walker complex: Associated anomalies, perinatal outcome and postnatal imaging. Fetal diagnosis and Therapy, 22(4), 277-281. Retrieved from <http://search.ebscohost.com.ezproxy.bryanlgh.org/login.aspx?direct=true&db=mdc&AN=17369695&site=eds-live&scope=site>

Imataka,G., Yamanouchi, H., & Arisaka, O. (2007). Dandy-Walker syndrome and chromosomal abnormalities. Congenital Anomalies, 47(4), 113-118. Retrieved from <http://search.ebscohost.com.ezproxy.bryanlgh.org/login.aspx?direct=true&db=mdc&AN=17988252&site=eds-live&scope=site>

Jurca, M.C., Kozma, K., Petchesi, C.D., Bembea, M., Pop, O.L., MuTiu, G., ... Dobjanschi, L. (2017). Anatomic variants in Dandy-Walker complex. Romanian Journal of Morphology And Embryology = Revue Roumaine De Morphologie Et Embryologie, 58(3), 1051-1055. Retrieved from <http://search.ebscohost.com.ezproxy.bryanlgh.org/login.aspx?direct=true&db=mdc&AN=29250689&site=eds-live&scope=site>

Lavanya, T., Cohen, M., Gandhi, S.V., Farrell, T., & Whitby, E.H. (2008). A case of a Dandy-Walker variant. the importance of a multidisciplinary team approach using complementary techniques to obtain accurate diagnostic information. The British Journal of Radiology, 81(970), e242-e245. <https://doi-org.ezproxy.bryanlgh.org/10.1259/bjr/77399621>

National Organization for Rare Diseases. (2008). Dandy-Walker Malformation.