Pediatric Clinical Support:
Fetal Alcohol Syndrome

Fetal Alcohol Syndrome (FAS), the most severe condition in the Fetal Alcohol Spectrum Disorders continuum, is the result of the mother's consumption of alcohol during pregnancy. FAS can be expressed by a number of physical and mental impairments. These birth defects are permanent. It is estimated that 1% of children in the US are along the FASD continuum (May and Gossage, 2001).

Characterized by:
Prenatal alcohol exposure, which crosses the placental barrier. Central nervous system damage, especially to the brain, occurs during embryonic development, where malformations happen in the first and second branchial arches.

Subtypes Include:
Partial fetal alcohol syndrome, alcohol-related neurodevelopmental disorder, alcohol-related birth defects, and fetal alcohol effect.

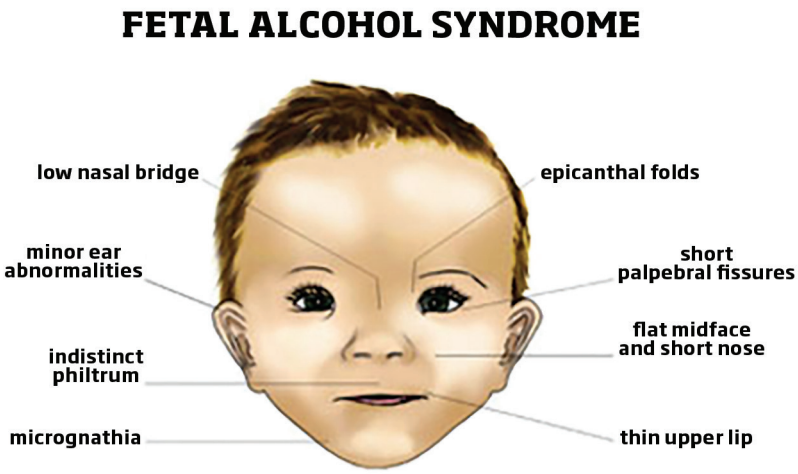

Figure 1. Craniofacial anomalies seen in children born with Fetal Alcohol Syndrome. The three most common FAS facial features are a smooth or indistinct philtrum, a thin upper lip, and small or short palpebral fissure.

Source: http://pubs.niaaa.nih.gov/publications/arh341/images/FAS%20Facefini.jpg

Audiological Manifestation:
There are four types of hearing loss most commonly associated with FAS (Church and Kaltenbach, 1997). These include developmental delay in auditory maturation, sensorineural hearing loss, conductive hearing loss due to recurrent otitis media, and central hearing loss. Vestibular impairments may also be indicated, as both auditory and vestibular systems arise from similar embryological tissue (Church and Abel, 1998).

Signs and symptoms:
Craniofacial anomalies (see Figure 1), cognitive impairments or other CNS damage, mental retardation/other neurodevelopmental disorders (see Figure 2), growth deficiency, hearing and vestibular impairments, speech and language disorders. A four-digit scale is used to define the severity of FAS, which include growth deficiency, FAS facial morphology, CNS damage or dysfunction, and prenatal exposure to alcohol (Katbamna, 2010).

Figure 2. Neurodevelopmental signs associated with FAS.

- Hyperactivity
- Distractibility
- Short attention span
- Poor judgment
- Impulsivity
- Poor social skills
- Poor visual and auditory memory
- Sensory problems (vision, audition, vestibular)

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Treatment:
Hearing evaluations to determine severity, which can determine appropriate amplification of cochlear implantation for profound losses. If the hearing loss is a recurrent conductive loss, preferential seating in addition to an assistive listening device to improve SNR may be beneficial. American Sign Language can be used as a communication method as well. It is paramount to diagnose any hearing, language, and/or mental impairments as early as possible in a child with FAS. The sooner the habilitation can begin, the more likely the child will have improved outcomes for his or her condition.

Parental Considerations:
Be aware of changes in IDEA law, and become familiar with the Protection and Advocacy agency in your state (http://www.advocacyinc.org/links_pa.cfm). Gaining knowledge on FAS and joining a support group can help with questions and also allow discussion on issues related to FAS. Other groups, such as The Arc, CHADD, and NAMI are also helpful to join if the child has a disability (links are below).

Educational Considerations:
The presence of FAS should be indicated and addressed on the child's IEP. This includes allowing access to information within the least restrictive environment for the child, typically one with many environmental controls. In the case of a child with FAS, they are usually labeled with the classification Other Health Impaired (OHI). For those with diagnosed hearing loss, this too should be noted in the child's IEP should also include effective communication strategies and other approaches for easier communication. Quality of life considerations should be addressed, including those related to hearing loss, language impairment, or other impairments that may have been determined under the FAS continuum.

Online Support Sources:
http://idea.ed.gov/explore/home
https://depts.washington.edu/fasdpn/pdfs/child.pdf
http://www.come-over.to/FAS/schooladvocacy.htm
http://come-over.to/FAS/brochures/
https://www.bced.gov.bc.ca/specialed/fas/jon1.htm
The Arc: http://thearc.org/
CHADD: http://chadd.org/
NAMI: http://www.nami.org/

Online and other References:
Church MW & Abel EL (1998). Fetal alcohol syndrome. Hearing, speech, language, and vestibular disorders. Obstetrics and Gynecology Clinics in North America, 25(1): 85-97.

Church, MA & Kaltenbach JA (1997). Hearing, speech, language, and vestibular disorders in the fetal alcohol syndrome: a literature review. Alcoholism Clinican and Experimental Research, 21(3): 495-512.

Katbanma, B (2010). Fetal Alcohol Syndrome: Effects on the Auditory System. Audiology Online. Retrieved from: http://www.audiologyonline.com/articles/fetal-alcohol-syndrome-effects-on-845.

May, PA.; Gossage, JP. (2001). "Estimating the prevalence of fetal alcohol syndrome. A summary.". Alcohol Res Health 25 (3): 159-67.

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