READING ASSIGNMENT:

Chapters 4, 12 and 13 of the Larsen text.

For those who want to know more, chapter 15 of Thompson and Thompson: "Genetics of Disorders with Complex Inheritance" as well as the three attached pdf files of recent review articles.

LEARNING OBJECTIVES:

To introduce the first year medical student class to some of the clinical relevance and appearance of the common malformations, holoprosencephaly, neural tube defect and cleft lip and palate. In addition, some basic concepts in clinical genetics such as complex inheritance and interplay between environment and genotype will be covered. At the end of the lecture, students should be aware of the following:

1. Holoprosencephaly describes a variety of malformations that share the common feature that the midline of the forebrain is malformed or missing. Facial malformation may or may not be present. There are many possible etiologies for this malformation. Children born with this malformation are uniformly severely mentally retarded.

2. Neural tube defect is a term used to describe a variety of malformations that all arise from failures of closure of the neural tube during development. These can be isolated or part of syndromes. Causes are many, but the majority are sporadic. Inheritance is complex. In the past, folate deficiency played a role in about 75% of cases. Long term consequences depend on level of lesion and whether or not there are associated malformations.

3. Cleft lip and palate are two distinct malformations that frequently occur together. They can be isolated or part of syndromes. Causes are many, but most are sporadic and follow "complex" inheritance. Consequences for affected children depend on whether there are other malformations and on how good the treatment is.