

# Genetic Disorders a Bird View

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## Introduction:

Impairment in an individual DNA leads to the occurrence of genetic disorders. There are different factors which leads to the alteration in gene, chromosome. The alteration addition or deletion of particular gene or segment of chromosome leads to particular disease. Here effort has been done to summarize and analyze the different genetic disorders.

Beej Dushti as a causative factor has been described in Ayurveda classics.<sup>[1]</sup> In description of types of diseases Acharya Sushrut explains Aadibalpravruta Vyadhi i.e. those produced by abnormalities of Shukra (Sperm) & Shonit (Ovum).<sup>[2]</sup>

## Categories of the Genetic Disorders:

Genetic disorders fall in to one of their categories.<sup>[3]</sup>

### Chromosomal Disorders:

This involves the lack, excess or abnormal arrangement of one or more chromosome, which leads to excessive or deficient genetic material & affecting many genes.

### Mendelian or Monographic Disorders:

These are determined by a single mutant gene & display simple Mendelian Inheritance pattern. Further classified in to autosomal dominant, autosomal recessive or X- linked types.

### Complex Disease Traits:

These are caused by an interaction of multiple genes and multiple exogenous or environmental factors

Again Genetic Disorders can be classified in to<sup>[4,5,6]</sup>

Single gene Disorder

Chromosomal Abnormalities

Multifactorial Disorders

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### Single Gene Disorder:

The mutations in the DNA sequence of single genes leads to single gene disorder.<sup>[7]</sup>

### Chromosomal Abnormalities:

The entire chromosome or large segments are missing, duplicated or altered.<sup>[8]</sup>

### Multifactorial:

The diseases are influenced by both genes & the environment.<sup>[9]</sup>

**Chromosomal Disorders<sup>[10]</sup>:** This involves largest changes in DNA & can include an entire extra copy of genome (triploidy), an extra chromosome (trisomy) deletions or duplication of portions of chromosome.

**Monogenic Disorder<sup>[11]</sup>:** These disorders ordinarily exhibit one of three pattern of inheritance.

Autosomal dominant

Autosomal recessive

X-linked.

### Complex Diseases Traits<sup>[12]</sup>:

The common chronic diseases of adults and the common birth defects have long been known to run in families indicating a genetic contribution to etiology. These disorders are complex disease traits or Multifactorial genetic disorders.

Multifactorial etiology is thought to be important for many diseases that develop after adolescence.

### Beej Dushti & Vyadhi (Disorders):

The vitiation of beej i.e. sperm & ovum leads to occurrence of many diseases.

### Sahaj Arsha:

The occurrence of hemorrhoids since birth is due to beej dosha.<sup>[13, 14, 15]</sup>

**Prameha:**

The Prameha is one of the metabolism disorders. Beej dushti is also causative factor in occurrence of Prameha<sup>[16,17]</sup>

**Kushtha:**

Kushtha is skin disorder likewise Prameha, Beej Dushti is also responsible for onset of Kushtha<sup>[18]</sup>

**Yonivyapat:**

In Ayurvedic classics the most of the gynecological disorders has been incorporated under Yonivyapat. Beej dushti is one among the Four causative factors of Yonivyapat<sup>[19,20]</sup>

**Shukra Dosh:**

Charaksamhita Mentioned 8 types of Shukra Doshas i.e. Fenil, Tanu, Ruksh, vivarn, Puti, Pichil, Puya, Anyadhatusamishra etc. this can cause disorders in offspring.

**Beejoghataj Klaibya:**

Among the classification of Klaibya the beejoghataj Klaibya occurs due to the vitiation of beej<sup>[22]</sup>

**Beejdoshat Garbhaj....Klaibya:**

This is one of the unique elaborations in Ayurvedic classic explaining about the transformation of genetic disorders to next generation.

Here due to Beej Dushti of Parents, the conceived child will suffer by Klaibya<sup>[23]</sup>

**Conclusion:**

Ayurveda has been described many diseases due to beejdushti. This beej dushti is either in case of male or female, both leads to hereditary disorders in offspring. While describing knowledge of diseases, Sushrut Explained Adibalpravrutta Vyadhi under one of the type of Adhyatmik Vyadhi<sup>[24]</sup> i.e. diseases of one's own individual body. Adibalpravrutta diseases are those produced by the abnormalities of Shukra (sperm) & Shonit (ovum) such as Kushth, Arsh etc. these are again of two kinds Matruij-derived from the mother & Pitruj - derived from the Father. So Beejdushti Plays important role in treating genetic diseases in offspring.

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