

## Distúrbios do Desenvolvimento, Crescimento e Diferenciação Celulares

Prof. Raimundo A. Tostes, M.Sc., D.M.V.

---

---

---

---

---

---

---

---

## Distúrbios do Desenvolvimento, Crescimento e Diferenciação Celulares

- ⇒ Alterações do desenvolvimento = congênicas
- ⇒ Alterações do crescimento = adquiridas
- ⇒ Alterações da diferenciação = congênicas / adquiridas

---

---

---

---

---

---

---

---

## Distúrbios do Desenvolvimento Celular

### ↳ Aplasia

Ausência de formação de um órgão. Só estão presentes rudimentos do órgão ou tecido.

⇒ *Aplasia segmentar*

---

---

---

---

---

---

---

---

## Distúrbios do Desenvolvimento Celular

### ATENÇÃO!

O termo aplasia é também aplicado para indicar a tendência de um órgão em não se regenerar ou formar novo tecido.

⇒ *Anemia aplástica*

---

---

---

---

---

---

---

---



---

---

---

---

---

---

---

---

## Distúrbios do Desenvolvimento

### ↪ Atresia

Ausência de perfuração.  
A estrutura se forma, porém não apresenta luz.

- ⇒ *Atresia anii*
- ⇒ *Atresia colii*
- ⇒ *Atresia jejunii*

Obs.: Só ocorre em órgãos tubulares ou em orifícios naturais.

---

---

---

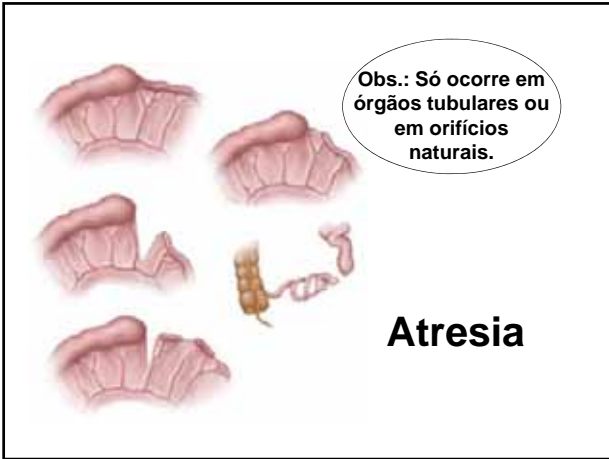
---

---

---

---

---



---

---

---

---

---

---

---

---



---

---

---

---

---

---

---

---



---

---

---

---

---

---

---

---

## Distúrbios do Desenvolvimento

### ↪ Agenesia

Ausência de iniciação do desenvolvimento total do órgão ou de parte dele.

- ⇒ Anencefalia
- ⇒ Ciclopia
- ⇒ Amelia
- ⇒ Agenesia ovariana, renal, etc.

---

---

---

---

---

---

---

---



---

---

---

---

---

---

---

---

## Distúrbios do Crescimento

### ↪ Hipoplasia

### ↪ Hiperplasia

### ↪ Hipertrofia

---

---

---

---

---

---

---

---

## Distúrbios do Crescimento Celular

### ↳ Hipoplasia

*Deficiência na formação. O órgão é menor e com função reduzida. O desenvolvimento é incompleto.*

- ⇒ *Hipoplasia ovariana*
- ⇒ *Hipoplasia testicular*
- ⇒ *Hipoplasia renal*

---

---

---

---

---

---

---

---



---

---

---

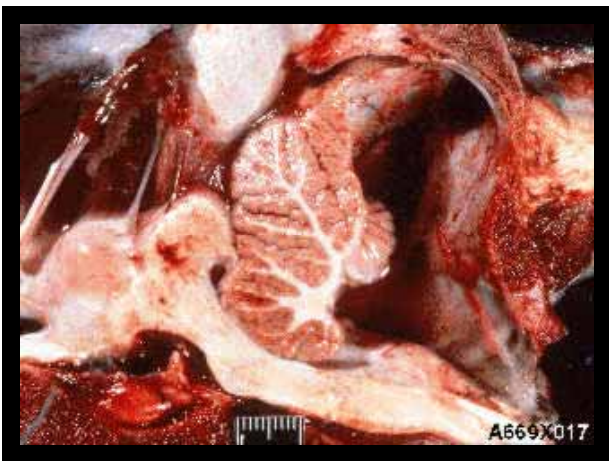
---

---

---

---

---



---

---

---

---

---

---

---

---



---

---

---

---

---

---


---

---

*Distúrbios do Crescimento Celular*

## Hipertrofia

É o aumento da síntese dos constituintes celulares (Anabolismo > Catabolismo), em células que tem bloqueada sua capacidade para dividir-se (células pós mitóticas ou permanentes ou perenes)



André "The Giant"

---

---

---

---

---

---

---

---

## Hipertrofia

- ⇒ fisiológica
- ⇒ compensatória ou vicariante
- ⇒ adaptativa
- ⇒ hormonal

Aumento de volume de um órgão por aumento da demanda funcional (adaptação) ou por aumento dos estímulos tróficos (ex.: hormonais)

---

---

---

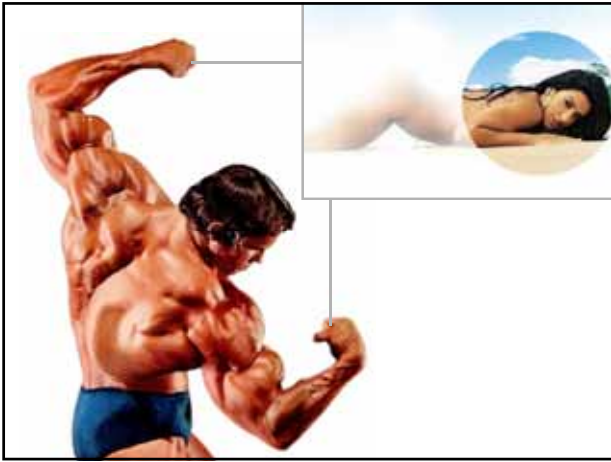
---

---

---

---

---



---

---

---

---

---

---

---

---



---

---

---

---

---

---

---

---



---

---

---

---

---

---

---

---




---

---

---

---

---

---

---

---

## Hiperplasia

Aumento do número de células de um órgão por aumento da demanda funcional (adaptação) ou por aumento de estímulos tróficos (ex.: hormonais). É uma consequência do aumento de mitoses

- ⇒ hiperplasia endometrial
- ⇒ hiperplasia prostática
- ⇒ hiperplasia linfóide (nodal e esplênica)
- ⇒ hiperplasia nodular senil esplênica
- ⇒ hiperplasia gengival

---

---

---

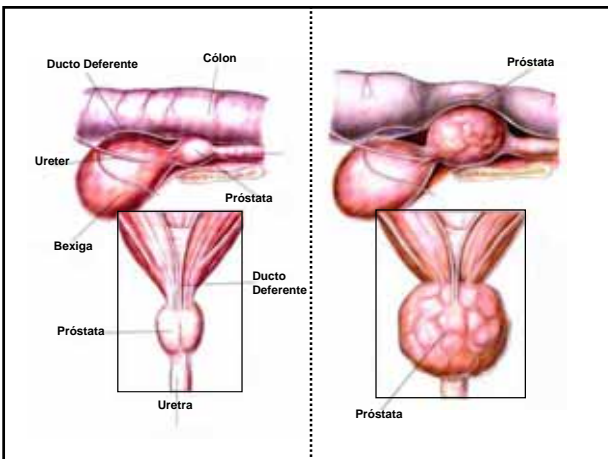
---

---

---

---

---




---

---

---

---

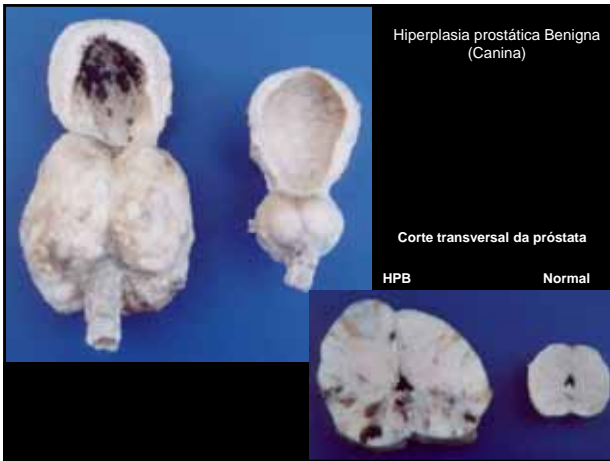
---

---

---

---






---

---

---

---

---

---

---

---




---

---

---

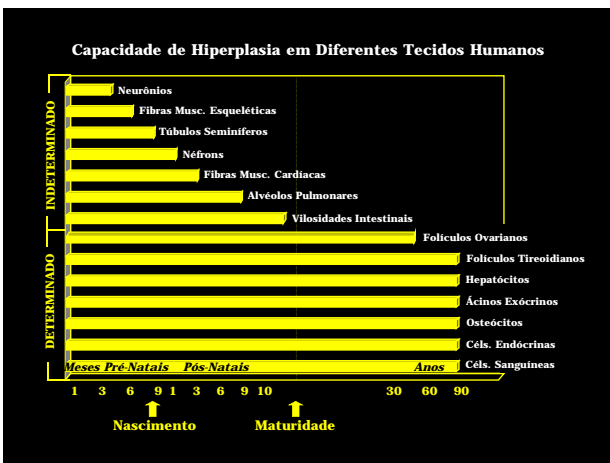
---

---

---

---

---




---

---

---

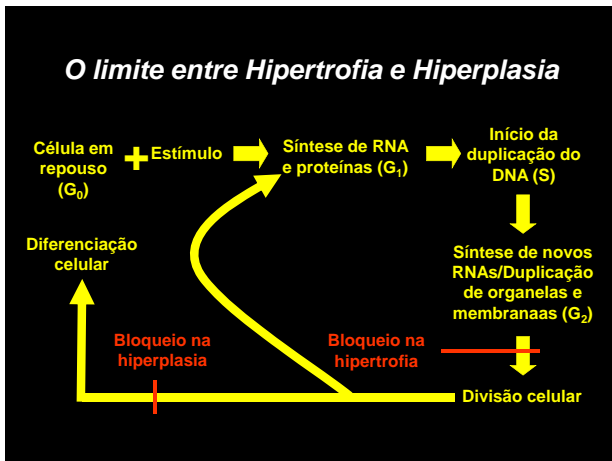
---

---

---

---

---




---

---

---

---

---

---

---

---




---

---

---

---

---

---

---

---

### Distúrbios da Diferenciação Celular

**Atrofia:** Ausência, privação ou deficiência de nutrição, geralmente associada com apoptose e autofagia (Catabolismo > Anabolismo), diminuição das organelas na célula, além da redução do volume e função celular.

- ⇒ por deservaçãoção
- ⇒ por suprimento sanguíneo deficiente
- ⇒ por perda do estímulo endócrino
- ⇒ por desuso
- ⇒ senilidade
- ⇒ por nutrição deficiente
- ⇒ atrofia serosa da gordura

---

---

---

---

---

---

---

---



---

---

---

---

---

---

---

---



---

---

---

---

---

---

---

---



---

---

---

---

---

---

---

---

## Distúrbios da Diferenciação Celular

### → Metaplasia

Transformação de um tecido maduro para outro diferente (mais resistente ao ambiente adverso), mas de mesma origem embrionária.

- ⇒ Escamosa
- ⇒ Óssea

---

---

---

---

---

---

---

---

## Distúrbios da Diferenciação Celular

### → Metaplasia

Mesma origem embrionária significa que:  
tecido epitelial .: tecido epitelial  
tecido conjuntivo .: tecido conjuntivo

~~conjuntivo .: epitélio~~  
~~epitélio .: conjuntivo~~

---

---

---

---

---

---

---

---

## Distúrbios da Diferenciação Celular

### ⇒ Displasia

#### ⇒ Órgão:

Processos regressivos, degenerativos, com frequência ligados a condições genéticas.

Ex.: displasia coxo-femural.

#### ⇒ Tecido:

Resposta proliferativa atípica e irregular às irritações crônicas. É reversível e caracterizada por perda de diferenciação (anaplasia), atipia celular (pleomorfismo e hiperchromasia), e atipia estrutural.

Ex.: nevos cutâneos (pintas).

---

---

---

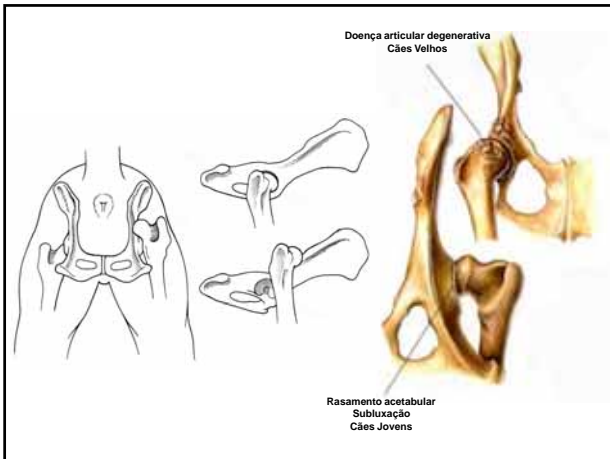
---

---

---

---

---




---

---

---

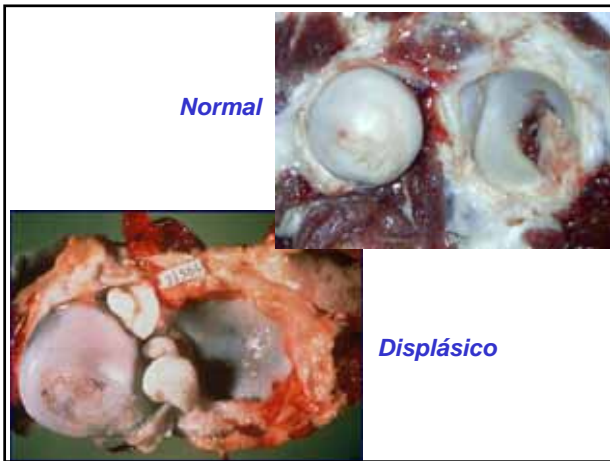
---

---

---

---

---




---

---

---

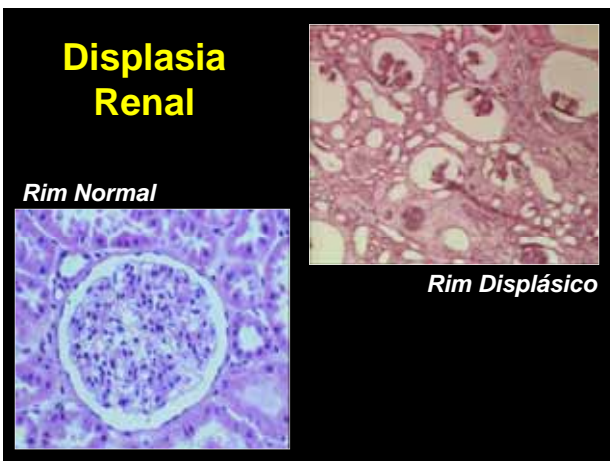
---

---

---

---

---




---

---

---

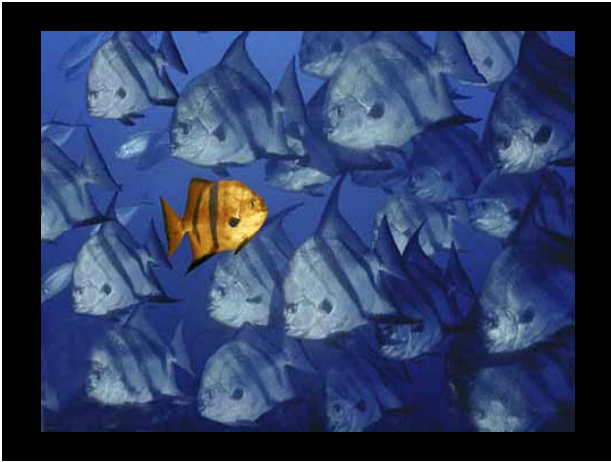
---

---

---

---

---



---

---

---

---

---

---

---

---



## Displasia

A displasia tecidual é considerada uma importante lesão pré-neoplásica!

---

---

---

---

---

---

---

---

## Teratologia



---

---

---

---

---

---

---

---

**Normal** é o indivíduo que mais se aproxima do padrão médio de sua espécie.

O que se desvia desse padrão é uma **anomalia**.

---

---

---

---

---

---

---

---

## Classificação das Malformações

### Monstros (teras/teratas)

*Indivíduos com deformações graves*

### Hemiterias (hemiteras/hemiteratas)

*Indivíduos com deformações leves*

### Anomalias Tardias

*Aparecem com o desenvolvimento*

---

---

---

---

---

---

---

---

## Causas das Malformações

### Malformações congênitas genéticas

- ⇒ Genes Letais
- ⇒ Genes Não-Letais

### Malformações congênitas adquiridas (causas externas não-hereditárias)

- ⇒ Separação parcial dos envoltórios fetais
- ⇒ Pressão anormal sobre o feto
- ⇒ Produtos químicos
- ⇒ Deficiências nutricionais
- ⇒ Infecções virais e bacterianas

---

---

---

---

---

---

---

---

## Exemplos de Hemiterias

- ↪ Fendas: falhas de partes em fechar-se ou coalescer-se
- ↪ **Fusões: falhas de partes em separar-se ou canalizar-se**
- ↪ Persistência de vestígios de estruturas
- ↪ **Partes acessórias ou supranumerárias**
- ↪ Partes ectópicas ou heterotópicas
- ↪ **Hamartoma**
- ↪ Anomalias do desenvolvimento do esqueleto
- ↪ **Malformações celulares e enzimáticas**
- ↪ Estenose
- ↪ **Fistulas**

---

---

---

---

---

---

---

---



---

---

---

---

---

---

---

---



---

---

---

---

---

---

---

---





---

---

---

---

---

---

---

---



---

---

---

---

---

---

---

---



---

---

---

---

---

---

---

---



**Monstros**

---

---

---

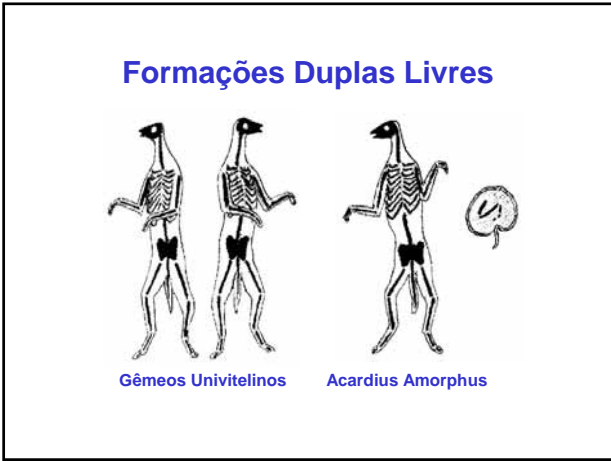
---

---

---

---

---



---

---

---

---

---

---

---

---



---

---

---

---

---

---

---

---

### Formações Duplas Unidas

#### Duplicações Completas Simétricas



Cefalotoracópago



Toracópago



Ileópago

---

---

---

---

---

---

---

---



---

---

---

---

---

---

---

---

### Formações Duplas Unidas

#### Duplicações Incompletas Simétricas



Duplicação Posterior (Dipigo)



Dicéfalo



Duplicação Anterior

---

---

---

---

---

---

---

---



---

---

---

---

---

---

---

---



---

---

---

---

---

---

---

---

**Formações Duplas Unidas**  
*Duplicações Assimétricas*

Epigástrico      Toracópago Parasita      Ileópago Parasita

---

---

---

---

---

---

---

---



---

---

---

---

---

---

---

---

**Formações Livres**

---

---

---

---

---

---

---

---



---

---

---

---

---

---

---

---



---

---

---

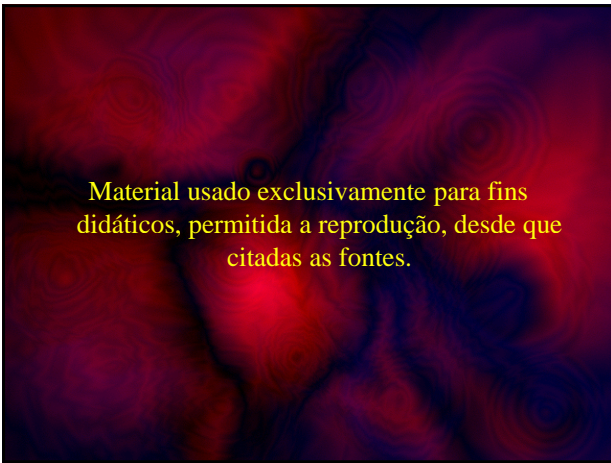
---

---

---

---

---



Material usado exclusivamente para fins didáticos, permitida a reprodução, desde que citadas as fontes.

---

---

---

---

---

---

---

---