

HPV

low risk

→ Benign squamous papillomas

→ Condylomata acuminata

high risk

→ Squamous Cell Carcinoma of cervix

→ Oropharyngeal cancer

Viral Oncogenesis: eg. HPV

HPV virus



HPV E1 (overexpression)

HPV E6 (overexpression)

1. RB-E2F

1. Inactivates Rb gene (release of inhibitory effect on cell cycle)

2. Inactivates CDK4/cyclin D

3. Inhibition of GSK3β (p21)

1. Degradation of p53 gene

2. Inhibition of p53

3. Overexpression of telomerase

Effects

- Immortalisation
- Activation of cell cycle
- Inactivation of cell growth restriction
- Overexpression of telomerase

# Differences b/w Benign & Malignant Lesions

Characteristic	Benign	Malignant
<b>A. Microscopic features</b>		
1. Differentiation / Anaplasia	→ Well differentiated	→ Well to poorly differentiated → Anaplasia is characteristic.
2. Pleomorphism	→ Absent (usually)	→ Commonly present
3. Nuclear morphology	→ Usually normal	→ Usually hyperchromatic, irregular outline & pleomorphism
4. Nucleoli	→ Usually absent	→ Usual & prominent.
5. Mitotic activity	→ Rare & if present normal & bipolar	→ High & may be abnormal or atypical.
6. Tumour giant cells	→ Not seen	→ May be seen & shows nuclear atypia.
7. N:C Ratio	→ Normal (1:4 to 1:6)	→ Incr (1:1)
8. Polarity	→ Maintained	→ Usually lost
9. Chromosomal abnormality	→ Not found	→ Usually seen.
<b>B. Gross features</b>		
1. Border / Capsule	→ Mostly circumscribed	→ Usually poorly defined.
2. Areas of necrosis & hemorrhage	→ Rare	→ Common, often found microscopically
<b>C. Clinical features.</b>		
1. Rate of growth	→ Usually slow	→ Relatively rapid
2. Local invasion	→ Usually well demarcated without invasion.	→ Locally invasive, infiltrate surrounding normal tissue
3. Metastasis	Absent	Present.
4. Prognosis	Good	Poor.