

ATYPIA-DYSPLASIA

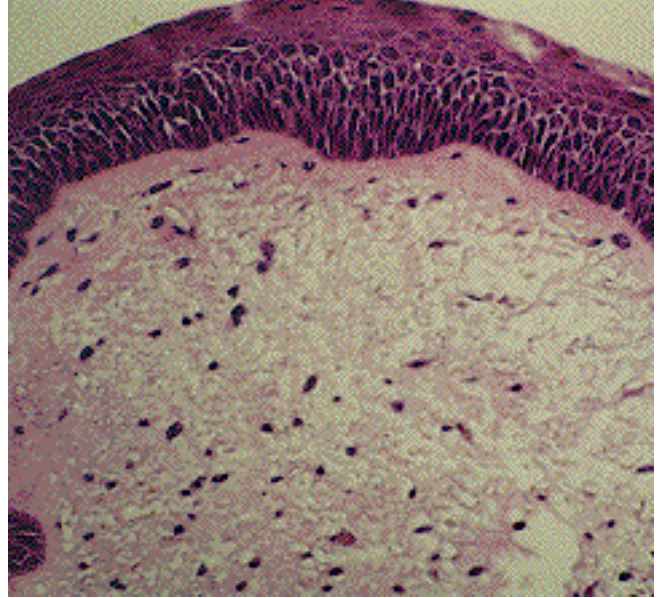
Atypia and dysplasia are terms describing changes in epithelia. The process results from various abnormal noxious and traumatic agents acting on a normal epithelium and causing the epithelial cells to alter their size, shape and orientation. Cigarette smoke altering laryngeal mucosa provides a good example. The process is reversible in most cases so long as the most advanced degree of dysplasia called "carcinoma in situ" has not been reached.

Mild dysplasia involves chiefly the deeper layers of the epithelium (inner one third of the epithelial thickness). In moderate dysplasia the abnormal changes move toward the surface involving the inner two thirds of the thickness of the epithelium. Severe dysplasia is used by some as synonymous with squamous carcinoma in situ while others use the term to describe changes including almost all of the epithelium, but falling just short of carcinoma in situ.

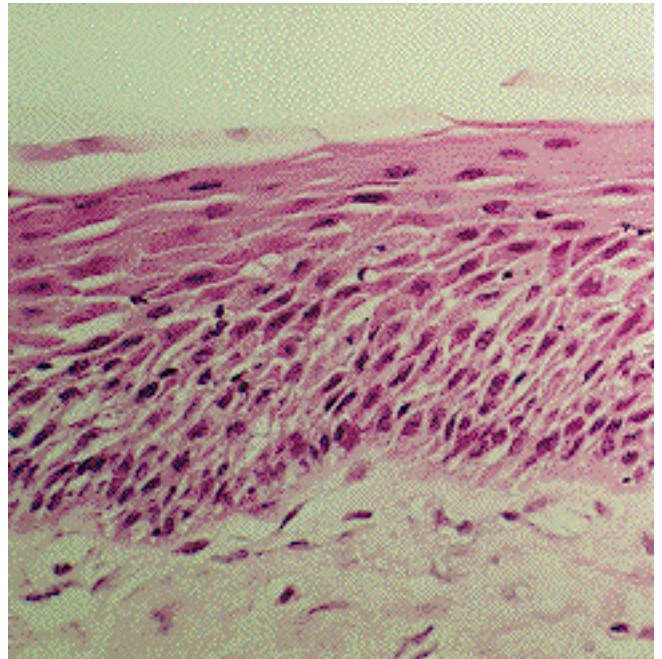
Cellular changes in dysplasia are those of nuclear pleomorphism, hyperchromia (increase in nuclear chromatin) causing deeper nuclear staining, prominent nucleoli, increased nuclear-cytoplasmic ratio, increased mitoses, loss of cellular polarity and crowding of cells. Associated changes related to epithelial architecture may include hyperkeratosis, parakeratosis, metaplasia, ulceration, acanthosis, and subepithelial inflammatory changes. In all cases it is essential that the basement membrane remain intact since this is the criteria separating carcinoma in situ from invasive carcinoma.

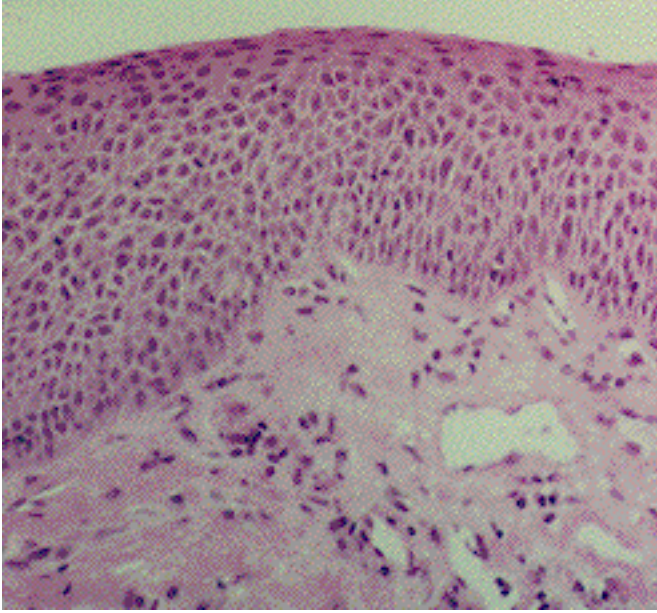
Sometimes the dysplastic process (also true of carcinoma in situ) may extend into epithelial glands but again the basement membrane must remain intact.

Normal epithelial maturation. A slightly tangential cut (as seen here) may produce an artifact causing cells to look somewhat atypical.

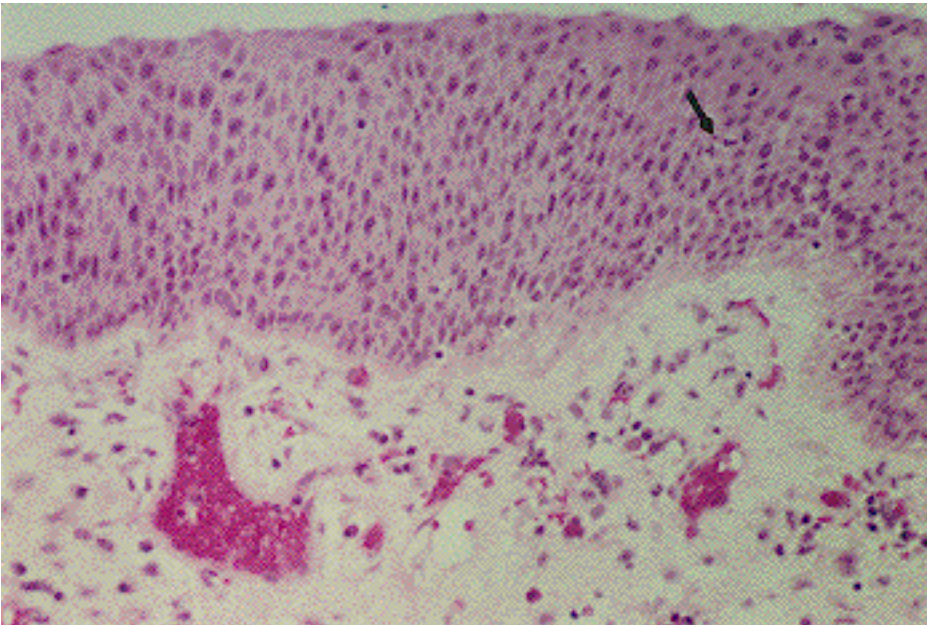


Mild dysplasia, there is alteration of the lower or basilar third of the epithelium because of nuclear hyperchromatism and pleomorphism. In these cells the nuclear-cytoplasmic ratio is altered in favor of the larger than normal nucleus. In other examples normal appearing mitoses may be evident toward the mid portion of the epithelium where normally none are seen.

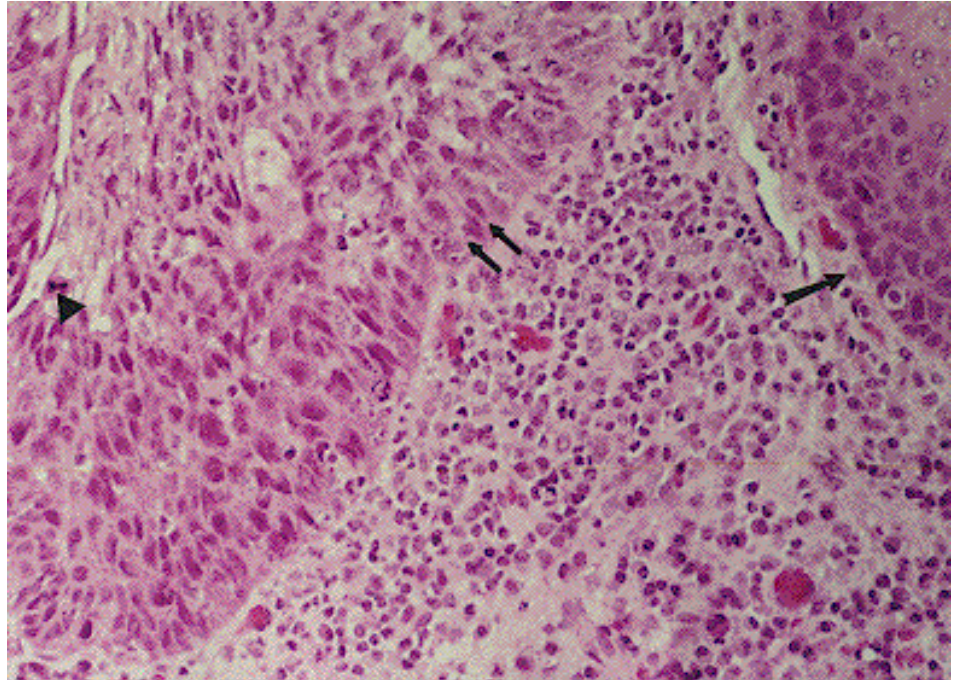




Moderate dysplasia, involves the lower two thirds of the epidermis with similar but more extensive changes than in mild dysplasia. Cellular crowding and loss of polarity is more evident; severe atypia would show involvement of virtually the entire epithelial thickness. Changes of hyperchromatism, pleomorphism, and alteration of nuclear-cytoplasmic ratio are present here.



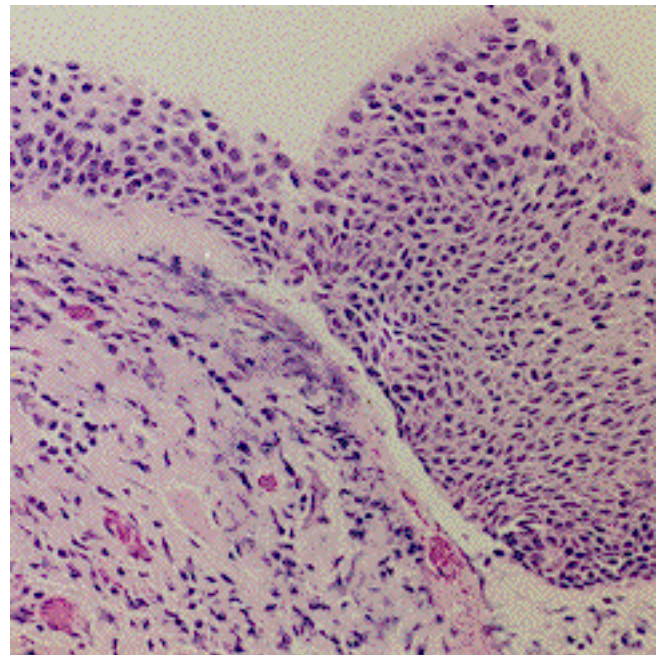
Moderate-severe dysplasia. Cell crowding exists in at least the lower two-thirds of the epithelium. Mitoses are not uncommon (arrow).

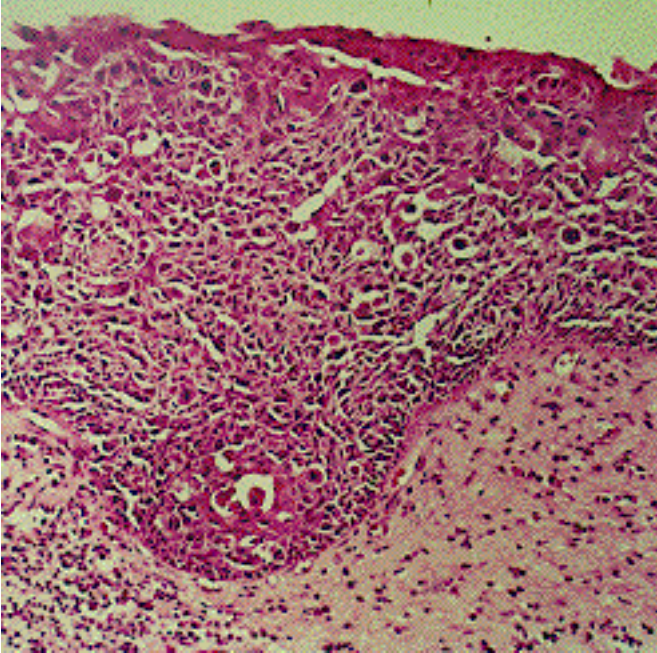


Severe dysplasia, with dysplastic changes involving entire thickness of the mucosa (double arrows).

Triangle points to a mitosis. This degree of atypia is enough to be called "carcinoma in situ" and is not expected to revert to normal even if noxious stimuli (smoking) are removed. Note the adjacent non-dysplastic epithelium for comparison (arrow).

Severe dysplasia. The mucosa is markedly hypercellular with no cell maturation at the surface. Note intact basement membrane.





Severe dysplasia (carcinoma in situ). Markedly crowded cells with loss of the orderly perpendicular orientation of cells to the surface. Individual abnormally keratinized cells are present throughout the epithelium.

CLINICAL ASPECTS:

Using laryngeal atypia as an example, the laryngologist sees thickening and usually whitening of the mucous membrane of the anterior aspect of the true vocal cord. The indefinite clinical term "leukoplakia" may be used. The condition may, in fact, represent inflammatory process rather than neoplasm, so that a trial on antibiotics may be indicated before biopsy is done. If the lesion does not clear, then biopsy is performed removing only the diseased mucosa and not the underlying tissue. If the pathologist reports mild or moderate atypia, and if the patient stops smoking, the condition usually clears. If carcinoma in situ is reported, the lesion is not expected to clear if any of it remains. Therefore, additional therapy such as a more generous stripping of the vocal cord or tissue evaporation with the laser unit is done. The pathologist may also recommend a deeper biopsy to rule out invasive disease. Invasive carcinoma requires much more vigorous therapy, either surgical or by irradiation therapy.