Depth of invasion (Core)

Reason/Evidentiary Support

Depth of invasion (DOI) in oral cavity squamous cell carcinoma, particularly of the tongue, has been identified as an important prognostic indicator. DOI is not synonymous with tumour thickness. In the recent American Joint Committee on Cancer (AJCC) the tumour stage (T) has been changed to reflect the importance of DOI.[1] DOI increases T by 1 step for every 5 mm, whereby T1 is tumour ≤2 cm and DOI ≤5 mm, T2 is tumour ≤2 cm and DOI >5 mm and ≤10 mm or tumour >2 cm but ≤4 cm and ≤10 mm DOI and T3 is tumour >4 cm or any tumour >10 mm DOI. The Union for International Cancer Control (UICC) staging system is similar to the AJCC with one exception: if the tumour is >4 cm AND > 10 mm DOI then the stage is T4a.[2] DOI measures the invasiveness of the carcinoma. To measure DOI, the basement membrane is identified and an imaginary line is drawn across the tumour. A vertical or "plumb line" extends to the deepest part of the tumour which represents the DOI. It is important to note that DOI is not synonymous with tumour thickness. An exophytic tumour (Figure 2A) may be thicker than an ulcerative tumour (Figure 2B), but the DOI of the ulcerative lesion may be greater.[3-6]
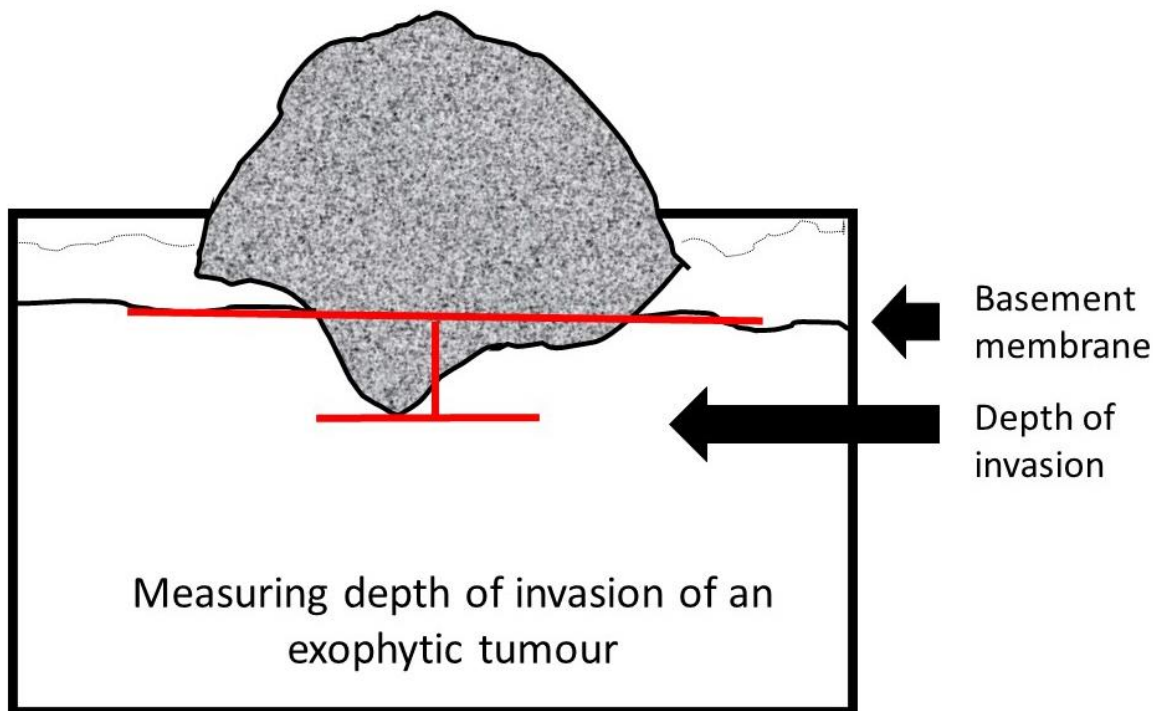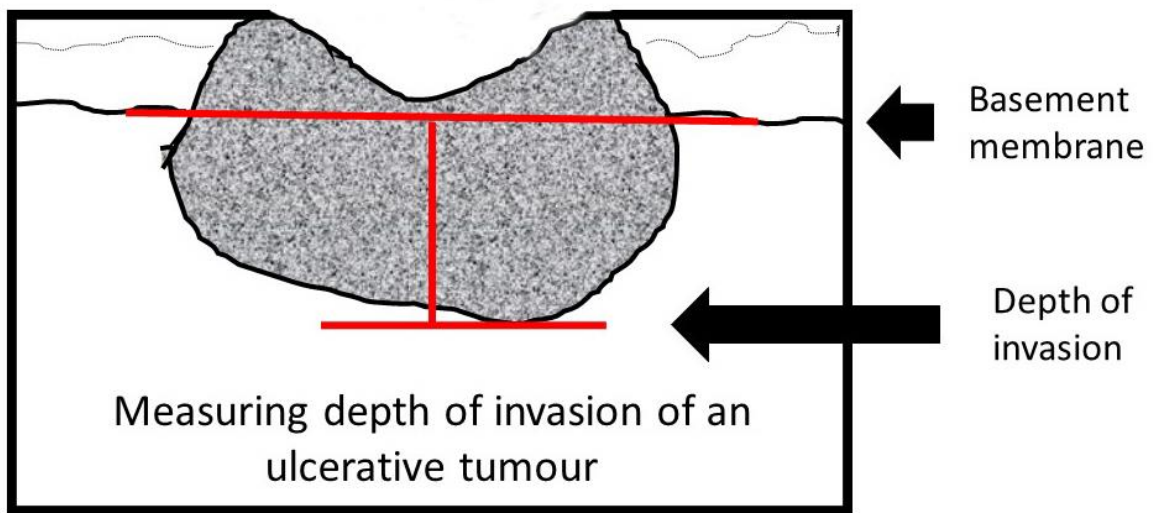

Measuring depth of invasion of an exophytic tumour

Figure 2A. Measuring depth of Invasion

Measuring depth of invasion of an ulcerative tumour

Figure 2B. Measuring depth of Invasion

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