2017 Abstract Award Winner

Deep Margin Embedding Errors Due to Bisected Samples

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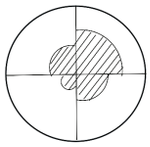
Saturday, April 29, 10:00 – 10:30 am

Subject:

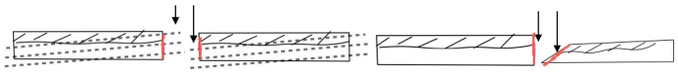
The literature promotes the idea that the vertically cut sides of multisected layers are a source of embedding errors and that these errors are often caused by tissue compression or rolling, (Derm Surgery, and BMC Derm have had several articles over the years).

Methods:

What's the true story of a map like this? Is it a positive dot in the centre or is most of the deep involved?



What's the error, tangental cuts or the edges sloping?

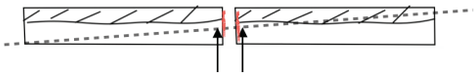


Tangental sections present a deep (on one side) and a shallow (on the other side) aspect of the block in the same cut. Max disagreement at adjacent sides(red inked edges) is at the arrows showing in this case the third cut into each block.

Vs

Compressed or rolled tissue creates a sloped edge that brings the deeper (tumor) structures closer to the face of the block. These deeper structures can now be reached with shallower cuts.

60 random cases are bisected (or nearly so) but are embedded together so to be sectioned in tandem(see below).



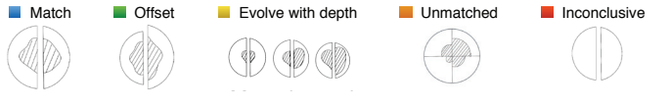
If both samples are placed together and sectioned together then the depth of the section is as close to equal at the side.

With dedicated practice an experienced tech can cut into a block face relatively squarely but still this problem presents itself. In order to eliminate any additional tangental element of sectioning, once a cut is made into the block no further adjustments are made and serial sections are harvested for evaluation.The slides were then read and mapped out as to early, mid and late sections.

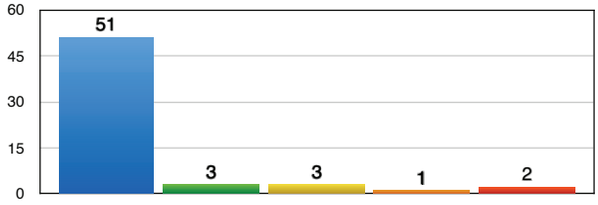
Results:

Of the cases tallied, the non matching examples are of the most interest. The 3 that matched only in the early cuts show how if one side is more compressed than the other it transitions into the positive region more rapidly. The offset samples are in principle a match as the proportional area is the same(its just stretched or scaled up) but are placed in the unmatched as they are not a perfect match. The unmatched needs no clarification and the inconclusive samples had such a homogeneous structure that it was hard to determine a difference in depth.

From the numbers its clear that edge rolling or compression is not the primary issue, 7 samples that didn't matchup compared to 51 that did. As for further testing of tangental sectioning it would be difficult to maintain a consistent angular error throughout the study but such an error could be calculated retrospectively by simply comparing early vs later cuts.



Mapped samples



Conclusion:

Keep angles constant once into the block and keep the depth between harvested sections consistent. Overly compressed tissue is still a significant (app 12%) error but not changing cutting angle is paramount. Let's give our surgeons the most valid slides possible.