

Preparation of Skin Specimen Blocks and Slides

Purpose: This document provides direction on how to prepare blocks and slides from a skin specimen using a standardized process, which eliminates preparation of separate blocks for skin ellipse tips and the automatic generation of multiple H&E slides.

Sample: Skin Biopsy – curettage, punch, shave, and excisional.

General Instructions:

1. Determine and standardize the patient demographic information written or printed on the cassette to create a unique block identifier.¹
2. Determine and standardize the direction the completed block will be oriented into the block holder on the microtome.
 - a. Allows skin pieces to be oriented so when cutting tissue sections the knife passes through the softer subcutaneous tissue first then the dermis and through the epidermis last. This helps to prevent scores in the softer areas of the tissue section by the harder keratin surface or hair.
 - b. Standard block placement prevents tissue loss due to excess trimming caused by realignment of the block face to the knife-edge during preparation of additional sections for ancillary testing.
3. Determine and standardize which skin specimens require marking with ink(s).
 - a. Take care to apply ink to margins and cut surfaces only. The use of forceps to hold the tissue avoids accidental transferred of ink to the epidermal surface from other surfaces such a dirty gloves.
 - b. Do not dip tissue directly into ink well, this can contaminate ink source.
 - c. Blot dry with paper towel or gauze the skin surfaces requiring marking to enable even application and avoid the ink running onto lesion surface.
 - d. Dip inked specimen into or blot inked surfaces weak acidic solution (table vinegar) and dry surfaces prior to cutting. Most inks are set in place with the acid solution preventing ink from dragging across cut surfaces, blurring the margins.
4. Set slides default at one. Specific specimens or clinical situations where upfront serial sections/additional slides may be identified. Additional deeper H&E levels only ordered when clinically required:
 - a. Clearly defined inked margins of a malignant/dysplastic lesion not identified on the section of an excisional specimen.
 - b. Part of the tissue section is missing; the full face of the tissue block is not exposed.
 - c. The clinical–pathological result is discordant.

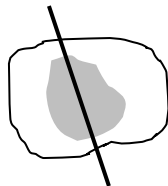
<p>Curettage: Consists of multiple small fragmented tissue pieces that cannot be reconstructed into a single specimen for margin inking or orientation.</p>		
Gross	Embedding	Section / Slide
<ol style="list-style-type: none"> 1. Filter specimen using biopsy bag or filter paper. 2. Submit specimen in toto in one cassette. 	<ol style="list-style-type: none"> 3. Embed fragments in one cassette. 4. Orientation of the tissue fragments is random, as identification of margins is uncertain. 5. Place fragments close together and all at the same level (depth) within paraffin in the base mold. This ensures a single cross section through all fragments in one tissue section. 	<ol style="list-style-type: none"> 6. Trim block to a depth that all fragments are completely cross sectioned. 7. Select one section (single level) and place on labelled slide for H&E staining. 8. Stain and submit only one slide.
<p>Punch: Consists of a single core of tissue (epidermis, dermis and subcutaneous) removed using a core punch of varying size.</p> <p>Shave: Consists of a piece of skin, which includes the epidermis and part of the dermis. Used most often with a raised lesion.</p> <p>Excisional: Consists of an ellipse of skin, which extends down into the subcutaneous fat and beyond the lesion into the normal epidermis on the skin surface. The elliptical shape allows for an improved cosmetic wound closure, where the ends of the ellipse extend well beyond the required margin for clearance of the lesion.</p>		
Gross	Embedding	Section / Slide
<ol style="list-style-type: none"> 1. Measure diameter of skin punch specimen. 2. Specimens exceeding the 4 mm depth of the cassette require dissection to allow the sample to be correctly oriented. 3. ≤ 4 mm <ul style="list-style-type: none"> • Do not ink specimen • submit as is into one cassette 4. 5-8 mm <ul style="list-style-type: none"> • ink skin surface margins and soft tissue margin • bisect across short axis through visible lesion or immediately adjacent to lesion if small or off center 	<ol style="list-style-type: none"> 6. To avoid creating tangential sections, place all pieces on cut edge and hold firmly in place as paraffin starts to solidify. 7. Group tissue pieces closely together to reduce drag on the knife-edge and improve ribbon production. 8. Orientation of the tissue should be the same for all tissue pieces, position all pieces to allow cutting of the epidermal surface to be last. 	<ol style="list-style-type: none"> 9. Trim block to a depth that all pieces are completely cross sectioned. 10. Select one section (single level) and place on labelled slide for H&E staining. 11. Stain and submit only one slide.

<ul style="list-style-type: none"> submit both sections in one cassette <p>5. 9-30 mm</p> <ul style="list-style-type: none"> ink skin surface margins and soft tissue margin serial section at 3-4 mm intervals from tip to tip through lesion submit all serial sections limiting number of pieces to in each cassette to 4-5 tips can be submitted in same cassette if the total number of cassettes is not increased, otherwise submit serially from tip to tip 		
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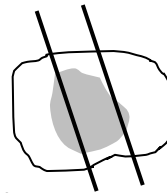
Procedure Notes and Limitations: ²

Shave Biopsies:

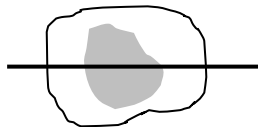
Ideal bisection
Shows closest margin



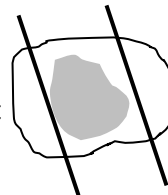
Ideal trisection
Shows closest margin and lesion in all sections



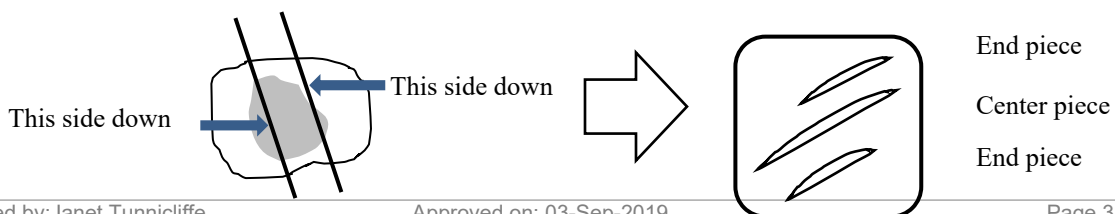
Not ideal bisection
Does not show closest margin



Not ideal trisection
Central section may not show lesion



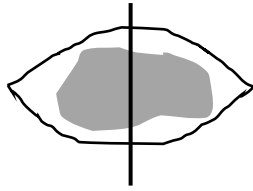
Note: If the specimen is trisected and submitted in one cassette, the pieces should be embedded ideally with the end pieces on the outside and the cut edge down.



Excisional biopsies:

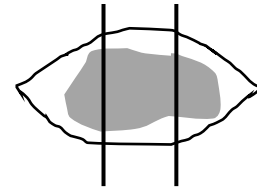
Ideal bisection

Excisions up to 8 mm, 1 cassette



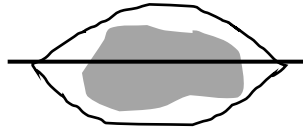
Ideal trisection

Excisions up to 12 mm, 1 cassette



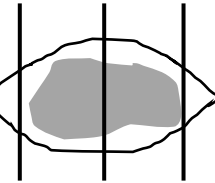
Not ideal bisection

Does not show closest convex margin

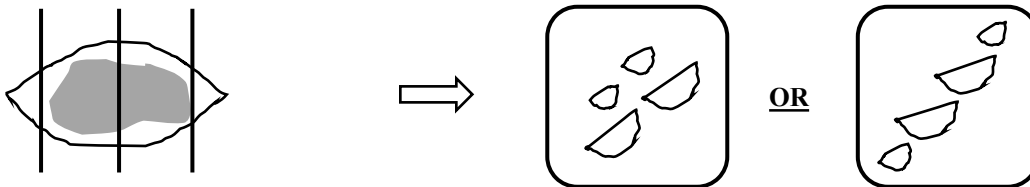


Ideal quadrisection

No lesion in tips if the excision is large (>10 mm)

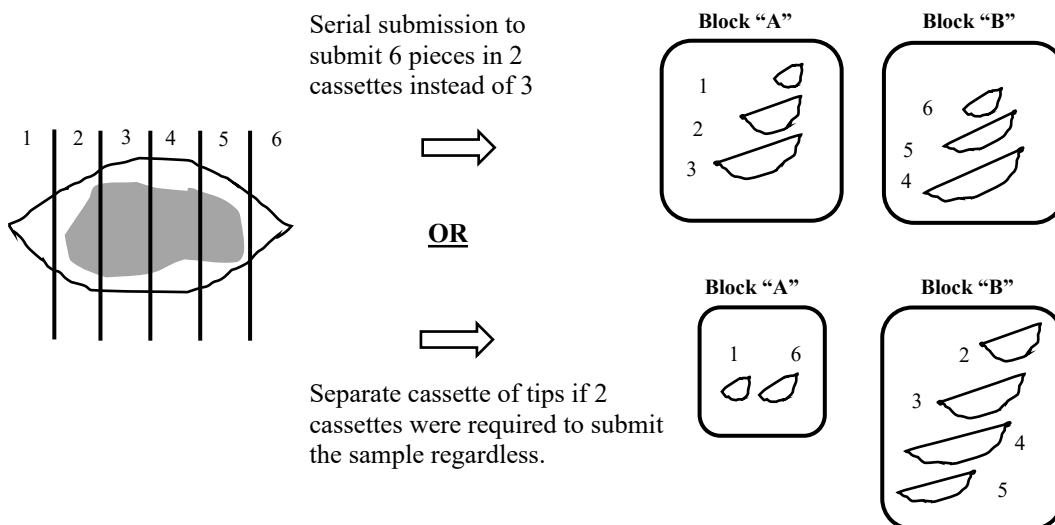


Note: If the specimen is submitted in 1 block, the tip pieces should be embedded ideally on the outside with the cut edge down.



Ideal serial sectioning

Cut sections of even thickness approximately 3-4 mm each. Submit with tips in "A" if this does not generate an extra cassette. Otherwise, submit serially from tip-to-tip.



Appendices /Supporting Documents:

Statement of Use: Best Practice Recommendation; approved by the Provincial Anatomical Pathology Advisory Group. This may be included in Health Authority / facility specific procedures.

References:

1. Uniform Labelling of Blocks and Slides in Surgical Pathology, Guideline from the College of American Pathologists Pathology and Laboratory Quality Center and the National Society for Histotechnology. Brown R.W. et al, *Archives Pathology Laboratory Medicine*; Vol 139, Dec 2015.
2. Tipping Point: Re-evaluation of Gross Examination of Skin Specimens to Improve Workload Efficiencies. Shiao CJ, Tunnicliffe J, Crawford R. *21st Joint Meeting of the International Society of Dermatology*; 2018