

<b>DEWS</b>	<b>DRY EYE: DIAGNOSTIC TEST TEMPLATE</b>	
<b>RAPPORTEUR</b>	J. Daniel Nelson, M.D.	19 <sup>th</sup> Oct 2004
<b>TEST</b>	<b>Conjunctival impression cytology</b>	
<b>TO DIAGNOSE</b>	Squamous metaplasia of the conjunctiva in KCS	Nelson – refs 1-4
<b>VERSION of TEST</b>	[1]	Nelson 1989
<b>DESCRIPTION</b>	1-3 layers of conjunctival epithelium and goblet cells are removed by applying and then removing pieces of cellulose acetate filter material and staining with hematoxylin and PAS stains	
<b>CONDUCT of TEST</b>	<ol style="list-style-type: none"> <li>1) With the patient seated, a drop of topical anesthetic is placed in each eye.</li> <li>2) Circular discs of cellulose acetate filter material (6.2 mm in diameter, 22 micron pore size) from which one side has been cut off are used.</li> <li>3) The filter paper discs are placed dull side down to the bulbar conjunctival surfaces, with the cut edge oriented slightly posterior to the corneoscleral limbus. The cut edge serves to orient the specimen when it is examined histologically. Samples are obtained at the 12:00, 3:00, and 9:00 o'clock positions in each eye and from the inferior palpebral conjunctiva in each eye. An ophthalmodynamometer is used to apply 60 grams of pressure to each specimen for two seconds.</li> <li>4) Each specimen is gently removed and placed on to a glass slide upon which a piece of two-sided tape has been previously place. The specimens are oriented in such a way to identify which eye and which location each specimen was obtained (as shown below).</li> </ol> <div style="text-align: center;"> <p>The diagram shows a rectangular area representing a glass slide. On the left side, there are three circular specimens arranged vertically, labeled from top to bottom as RTB, RIP, and RNB. On the right side, there are three circular specimens arranged vertically, labeled from top to bottom as LSB, LTB, and LIP. The labels indicate the eye (R for Right, L for Left), the location (B for Bulbar, P for Palpebral, N for Nasal, S for Superior, I for Inferior), and the time of collection (T for Temporal).</p> </div> <p style="text-align: center;"><i>R= Right; L= Left; B= Bulbar; P= Palpebral T= Temporal; N= Nasal; S= Superior; I= Inferior</i></p> <ol style="list-style-type: none"> <li>5) Specimens are sprayed with a spray fixative and then stained at a later time using hematoxylin and periodic acid-Schiff (PAS) stains. Papanicolaou stain may be used in place of the hematoxylin.</li> </ol>	
<b>Web Video</b>	Not available	
<b>Materials:</b>	<ul style="list-style-type: none"> <li>• Cellulose acetate filter material (Millipore® filter</li> </ul>	

	<p>paper)- Millipore Corporation, Bedford, MA 01730; Cat. No. VSWP 090 25</p> <ul style="list-style-type: none"> <li>• Spray-Cyte Fixative</li> <li>• Double-sided tape</li> <li>• Glass slide</li> <li>• Ophthalmodynamometer</li> <li>• Hematoxylin and PAS Staining procedure</li> </ul>	
<b>Variations of technique</b>	Tseng's technique uses Papanicolaou stain instead of hematoxylin	Tseng 1985
<b>Standardization</b>	Time of day [ ] Temperature [ ] Humidity [X] Air speed [ ] Illumination [ ] Other:[amount of pressure applied to obtain specimens]	
<b>Repeatability</b>	Intra-observer agreement. [NA] Inter-observer agreement. [ $\kappa \sim 0.7$ ]	
<b>Sensitivity</b>	[NA]	
<b>Specificity</b>	[NA]	
<b>Other Stats</b>	<i>None.</i>	
<b>Test problems</b>	Time to obtain specimens and the availability of staining facilities, a microscope, and familiarity with grading systems.	
<b>Test solutions</b>	Can you suggest an improvement? No	
<b>FORWARD LOOK</b>	Future: A relatively easy way to obtain conjunctival and corneal epithelial cells for various staining and testing procedures.	
<b>Glossary</b>	CIC = Conjunctival Impression Cytology	

## References

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Nelson JD. Impression cytology. *Cornea* 1988; 7:71-81.

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Tseng SCG. Staging of conjunctival squamous metaplasia by impression cytology. *Ophthalmolog*. 1985; 92:728-733.