BACTERIAL FLORA OF TEETH

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We all have little pockets between our teeth which tend to accumulate food, even when we brush regularly. The presence these moist food nutrients combined with a neutral pH and body warmth to provide excellent growth conditions for bacteria. Our bodies defend against these bacteria with a class of phagocytic leukocytes whose nuclei are highly variable with 3-5 lobes (therefore known as polymorphonucleocytes, PMNs or "polys"). The cytoplasm in these cells is rich in lysosomes which contributes to the staining properties when the cells are stained with Wright's stain, earning the appellation "neutrophil." (The numbers of these bacteria-fighting WBC increase dramatically during acute infections such as appendicitis.) One will also see occasional squamous cells from the periodontal mucosa.

The number and variety of bacteria found in this trapped material can be amazing. You should be able to find representatives of cocci, bacilli and spirilla morphologies.

EQUIPMENT: Same as for Buccal Smear.

1. **Prepare a *clean* slide**, place a small drop of dH_2O in the center.
2. **Collect specimen** by using a tooth pick to dislodge a small bit of material lodged on the tooth surface at the gum line, or between your teeth.
3. **Suspend the specimen** in the drop of water, rotate the toothpick to dislodge the material, break any "chunks" into tiny pieces, and then spread the drop out to a smear the size of a dime. It should be only slightly hazy. [If the water beads up and forms droplets instead of spreading out well, you did *not* cleanse the slide adequately. Wash the slide again with soap and hot water.]
4. **Fix the smear** by briefly passing the slide through a flame.
5. **Stain the smear** by placing a drop of methylene blue or other basic stain on the smear, spread it out so the whole smear is covered. Let sit for 1-2 minutes.
6. **Rinse with tap water** for 2 seconds to remove excess stain.
7. **Blot excess water** from the slide with a lint-free paper towel. (Do not rub.)
8. **Dry over gentle heat** by passing the slide briefly through the flame.
9. **Examine under the microscope**, locating a properly spread and stained field. Work your way up to the 100x oil immersion objective (see separate protocol).
10. **Illustrate** eukaryotic cells which are present (leukocytes and squamous cells), and the variety of the bacterial morphologies which you see. Label them according to their morphology.

See these related protocols: *Bacterial Smear and Staining*
Buccal Smear
Oil Immersion