University of Washington Department of Orthodontics

BONDING IN ORTHODONTICS

Rational: Accurate placement of pre-adjusted appliances decreases the need for finishing bends and reduces unnecessary tooth movement. Good acid-etch bonding technique maximizes tooth-appliance bond strength.

Technique

1. Tooth surface
   - must be free of plaque, calculus, and debris
   - must have surface easily conditioned for bonding strength (enamel: best, dentin/cementum: poor, porcelain: moderate, gold/amalgam: poor)

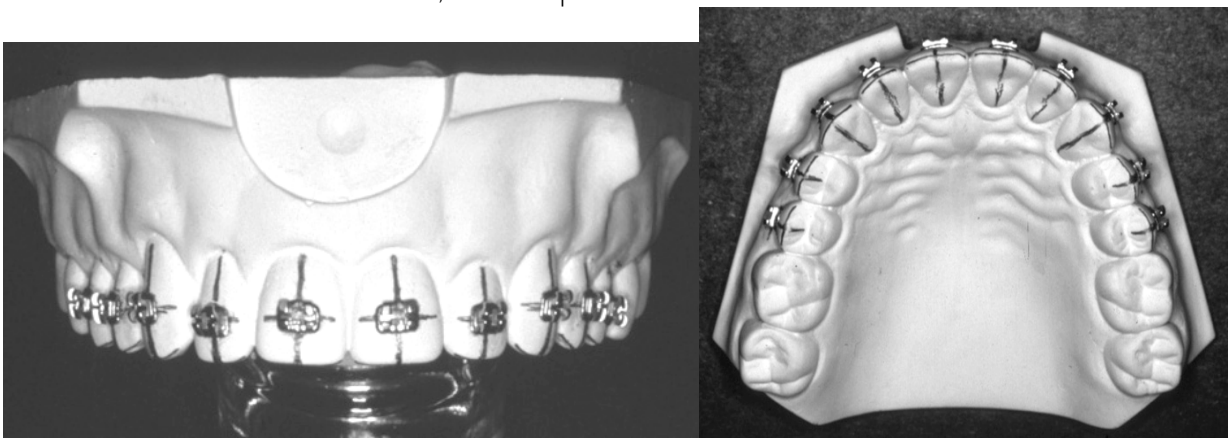
2. Appliances
   - mesh pads used for maximum retention—must push adhesive into mesh!
   - pad of bracket must match contour of tooth (beware of oddly-shaped crowns)

3. Isolate
   - Use lip retractors or the Nola device. Cotton rolls may be used for single tooth bonding.
   - Avoid contaminating etched surface with blood, saliva or crevicular fluid (all decrease bond strength)

4. Etch
   - usually 37% phosphoric acid (can bum soft tissue!)
   - allow etch to sit on tooth for 15-30 seconds, avoid etching whole tooth and keep away from interproximal areas
   - rinse etch away from gingiva for 1-5 seconds, use only water to begin rinse and end with air/water blast to remove remnants.
   - remove any remaining water from field with compressed air directed toward gingiva. Etched surface should appear dull and frosty
   - suction patient to remove water and etch

5. Adhesive
    - light cure adhesive has 2 componants
        - unfilled primer—apply very **thin** layer after frosty etched surface obtained (this is an optional step)
        - adhesive—apply a small amount (~1mm^3) to back of bracket and press into mesh. Be sure to discard the first increment of adhesive out of the tube, as it may be light- and oxygen contaminated

6. Position
    - center bracket on tooth, align with long axis
        - bracket should lie on height of contour (from occlusal aspect)
        - panoramic radiographs are useful in finding the long axis of the tooth
        - brackets are usually tooth-specific, with the dot going **disto-gingival**
    - press bracket to expel extra adhesive
    - clean adhesive flash, recheck position



7. Bond
    - remove operatory light from field (initializes cure early)
    - check to be sure bracket slot and tie wings are not blocked with adhesive
    - light cure appliances for 20-30 seconds/bracket with a calibrated curing light. Be sure to cover all angles.
    - once all brackets are cured, wires may be placed immediately. Full bond strength is not reached until 24 hours after initialization of cure, regardless of adhesive type (light- or chemical-cure).

8. Re-bonding
    - check bracket base and tooth surface. Where did failure occur?
    - remove remaining adhesive from tooth surface with a fine fluted finishing bur on a high-speed handpiece.
    - re-etch, prime and bond.
    - be aware that rebonding may reduce bond strength