

## MB2 PROTOCOL CHECKLIST

# 15-point MB2 protocol checklist

Use this chairside checklist when MB2 anatomy stops being obvious. The aim is controlled access, deliberate troughing, passive scouting, glide path confirmation, and referral judgment.

01

## DIAGNOSE AND ORIENT

## Expect MB2 in maxillary molars

**Start every maxillary molar search with MB2 as the working assumption, not a rare exception.**

MB2 anatomy is common enough that the clinical error is usually under-searching, not over-searching. Begin the case assuming a second mesiobuccal canal may be present, then let the chamber floor, radiographs, CBCT when indicated, and tactile feedback prove otherwise. This mindset changes the access plan: preserve the dentinal map, establish MB1, DB, and palatal landmarks first, and search deliberately rather than cutting randomly after the obvious canals have been found.

[YouTube: MB2 Canal: How to Find and Treat It? Step-by-Step Guide](#)

02

## DIAGNOSE AND ORIENT

## Review angled radiographs; consider CBCT

**Use imaging to decide whether the search needs more information before dentine is removed.**

A straight-on radiograph can hide canal separation, mesial root curvature, and the buccolingual position of MB2. Angled periapical views help show whether the MB root outline, canal disappearance, or periapical change suggests hidden anatomy. CBCT is most useful when the chamber is calcified, the tooth has been previously treated, anatomy is unclear, or mesial pathology suggests a missed canal. The point is not to scan every case; it is to add information before access or troughing becomes guesswork.

[YouTube: Role of CBCT in MB2 canal location](#)

03

## DIAGNOSE AND ORIENT

## Create controlled access

**Controlled access means enough visibility and line of entry without sacrificing the landmarks that guide MB2.**

MB2 is often missed when access is too small to see the chamber floor or too aggressive to preserve useful color and groove anatomy. Open the chamber enough to visualize the pulpal floor, remove restrictive overhangs, and create a reproducible path for inspection. Preserve pericervical dentine and the chamber-floor map, but do not confuse contracted access with controlled access. If the file or ultrasonic tip is being asked to work around preventable coronal obstruction, refine the access first.

[YouTube: Finding MB2](#)

04

## DIAGNOSE AND ORIENT

## Identify MB1, DB, and palatal canals first

**The known canal positions give the MB2 search its coordinate system.**

Before searching for MB2, confirm MB1, distobuccal, and palatal canal positions. These landmarks define the developmental groove and prevent an uncontrolled hunt across the chamber floor. MB2 is commonly found palatal or mesial-palatal to MB1, but the exact position varies. Use the known canal map to decide where to inspect, trough, and scout. This reduces the risk of chasing stains, bubbles, or shelves in the wrong direction and makes any later variation easier to interpret.

[YouTube: In search of the elusive MB2 canal](#)

05

## READ AND EXPOSE

## Read the dentinal map

**The chamber floor is a map; avoid polishing away the clues before they have been read.**

Color change, developmental grooves, and the relationship between MB1 and the palatal canal often reveal the direction of the MB2 search. Keep the chamber floor clean, wet, and visible under magnification. Do not flatten, polish, or overprepare the floor before reading it. The dentinal map should guide where ultrasonic refinement begins and where a small file is introduced. When the map is subtle, slow inspection is safer than widening access in every direction.

[YouTube: MB2 Canal Discovery Tip](#)

06

## READ AND EXPOSE

## Look for white-line, red-line, bubble, and color clues

**Small visual signs can identify a hidden orifice before it is mechanically opened.**

A white line may show a developmental groove or calcified track. A red line may reveal pulpal tissue in a narrow pathway. A persistent hypochlorite bubble can mark a small orifice or tissue space. Color change can distinguish chamber floor from reparative dentine. None of these signs is proof by itself, but together they form a direction. Use them to narrow the search, then confirm with gentle troughing and passive scouting rather than force.

[YouTube: The Champagne Bubble Test for finding hidden canals](#)

07

## READ AND EXPOSE

## Remove the mesial dentine shelf deliberately

**The mesial shelf can hide MB2 and deflect instruments; remove it only with a clear purpose.**

MB2 often sits beneath or behind a mesial dentine shelf between MB1 and the isthmus area. Removing this shelf improves visibility and creates a straighter line for inspection and initial negotiation. The removal must be deliberate: brush, inspect, irrigate, and reassess. Avoid blind digging toward an expected location. The goal is to uncover anatomy and remove coronal interference, not to create a trough so deep that the floor landmarks are lost.

[YouTube: Finding MB2](#)

08

## READ AND EXPOSE

## Use ultrasonics for controlled troughing

**Ultrasonics should refine the map and uncover the orifice, not replace diagnosis.**

Ultrasonic troughing is useful because it removes small amounts of dentine with visibility and control. Use light brushing strokes along the developmental groove, then irrigate and inspect before continuing. Work from known anatomy toward suspected anatomy. Stop often to look for a catch point, color change, or bubble response. If the trough is lengthening without new information, pause and re-orient. Controlled troughing is a sequence of inspect-refine-inspect, not continuous cutting.

[YouTube: Ultrasonic troughing to find MB2](#)

09

## NEGOTIATE AND SHAPE

## Scout passively with small precurved K-files

**Use a very small terminal curve to read the canal direction without forcing the file.**

Once MB2 is suspected or exposed, scout with a small pre-curved #08 or #10 K-file. The curve belongs only in the last three flutes, about 1-2 mm at the tip, so the file can read the path while the shaft remains controllable. Introduce the file gently and use tactile feedback to confirm direction. If it does not advance passively, withdraw, clean, recurve, irrigate, and reassess the access. The objective is direction first, not length at any cost.

[YouTube: Step by step shaping of calcified MB2](#)

10

## NEGOTIATE AND SHAPE

**If the file binds, stop and reassess**

**Binding is information that the pathway is not yet ready for progression.**

A binding file should not be pushed, wound harder, or treated as proof that progress is being made. Binding can mean dentine shelf interference, a sharp curvature, a calcified track, debris, or a false direction. Stop, irrigate, inspect, and ask whether the coronal path needs refinement. Reconfirm the entry angle and whether the file returns to the same path. Progress only when the file can move with controlled feedback rather than forced advancement.

[YouTube: Glide Path Management: When a Ledge is a Block](#)

11

## NEGOTIATE AND SHAPE

**Build a smooth glide path**

**The shaping file should receive a pathway it can re-enter, not a mystery it must discover.**

A glide path is not a single lucky pass to length. It is a reproducible route that the instrument can leave and re-enter without force. Confirm that the small file returns to the path predictably before rotary shaping. Acrobat MB2 or other glide-path files should follow the proven direction, using feedback to confirm forward movement. A smooth glide path reduces torsional load, protects the apical third, and makes the handoff into TransformX shaping more controlled.

[YouTube: Glide Path Management - Irregular Glide Path](#)

12

## NEGOTIATE AND SHAPE

**Irrigate and recapitulate throughout**

**MB2 is narrow and debris-sensitive; irrigation and recapitulation are part of pathway control.**

MB2 canals can be narrow, curved, and connected to MB1 through an isthmus. Debris can block the path quickly, especially after troughing or early shaping. Irrigate frequently, clean flutes, and recapitulate with a small file to confirm the pathway still exists. This protects working length and keeps tactile feedback readable. If the canal stops behaving the same way, do not simply continue the sequence; re-establish the path before asking a shaping file to work.

[YouTube: Glide Path Management - Working Length and Patency](#)

13

## CONFIRM AND DECIDE

**Confirm the MB2 pathway**

**MB2 treatment decisions depend on whether the canal merges, separates, or communicates through an isthmus.**

After negotiation, confirm the pathway rather than assuming every MB2 behaves the same way. MB2 may merge with MB1, maintain an independent exit, or communicate through an isthmus. This affects shaping, irrigation, obturation, and the risk of over-enlarging a narrow path. Use tactile feedback, working length behavior, radiographs, and CBCT information when available. The question is not only whether MB2 exists; it is how it connects to the mesiobuccal root system.

[YouTube: Maxillary molar MB2 canal negotiation with CBCT and magnification](#)

14

## CONFIRM AND DECIDE

**In retreatment, suspect missed MB2**

**A previously treated maxillary molar with mesial pathology should trigger an MB2 search strategy.**

In retreatment, a missed MB2 is a common explanation for persistent symptoms or recurrent mesial root pathology. Do not assume the prior access found all anatomy. Reassess the chamber floor, old filling material, posts, calcification, and restorative limitations. CBCT may be especially useful when anatomy is blocked or altered by previous treatment. The search should still be conservative: restore visibility, read the map, remove obstruction deliberately, and confirm any suspected pathway before shaping.

[YouTube: Does locating the MB2 matter?](#)

15

## CONFIRM AND DECIDE

**Final decision: proceed or refer**

**Proceed only if the case can be treated with visibility, pathway control, and a predictable stop point.**

The final decision is a control decision. Proceed when MB2 has been located or reasonably excluded, the access is controlled, the glide path is reproducible, and shaping can be performed without forcing. Refer when visibility is poor, calcification is advanced, the path cannot be confirmed, the file repeatedly binds, or retreatment anatomy makes the case unpredictable. Referral before perforation, ledging, transportation, or instrument separation preserves options and is often the safest clinical choice.

[YouTube: Missed MB2 canal CBCT endodontics case report](#)

## SOURCE BASE

The MB2 checklist combines the local EndoTech protocol document with anatomy, CBCT prevalence, canal-configuration, and clinical-observation literature. The page uses these sources to support controlled access, deliberate troughing, passive scouting, glide path confirmation, and referral decisions.

- EndoTech NZ 15-point MB2 protocol checklist source document.
- Al Mheiri E, Chaudhry J, Abdo S, El Abed R, Khamis AH, Jamal M. Evaluation of root and canal morphology of maxillary permanent first molars in an Emirati population; a cone-beam computed tomography study. BMC Oral Health. 2020;20:274. doi:10.1186/s12903-020-01269-2.
- Vertucci FJ. Root canal anatomy of the human permanent teeth. Oral Surgery, Oral Medicine, Oral Pathology. 1984;58(5):589-599. doi:10.1016/0030-4220(84)90085-9.
- Kulild JC, Peters DD. Incidence and configuration of canal systems in the mesiobuccal root of maxillary first and second molars. Journal of Endodontics. 1990;16(7):311-317. doi:10.1016/S0099-2399(06)81940-0.
- Stropko JJ. Canal morphology of maxillary molars: clinical observations of canal configurations. Journal of Endodontics. 1999;25(6):446-450. doi:10.1016/S0099-2399(99)80276-3.
- Cleghorn BM, Christie WH, Dong CCS. Root and root canal morphology of the human permanent maxillary first molar: a literature review. Journal of Endodontics. 2006;32(9):813-821. doi:10.1016/j.joen.2006.04.014.
- Local EndoTech MB2 access, reference-image, and anatomy-book folders were used for workflow structure and redrawn teaching diagrams; unpublished reference-only images are not reused directly.