REAL-TIME ULTRASOUND VIDEO UNDERSTANDING

# Criterion for US Narration

Narration and recording criterion for ultrasound-guided ablation demonstration videos, in three parts.

## Procedure Overview

The whole procedure, and which part of the video narrates it:

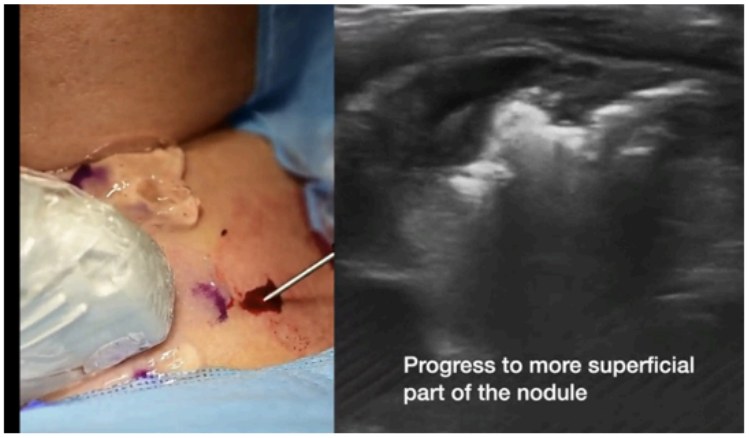
| Stage | Steps | Video part |
|---|---|---|
| **Preparation** | 0. Preparation — case study, operation setup | Part 1 — Case & Setup |
| **Surgery** | 1. Lidocaine injection & hydrodissection (if needed).<br>2. Ablation — 2.1 trans-isthmus approach; 2.2 moving shot. | Part 2 — Intra-operative Narration |
| **Post-surgery** | 3. Post-ablation ultrasound check | Part 3 — Post-op Analysis |

## 0. Recording Requirements

**Deliverable: one video with English audio narration**, covering the case, the setup, the ultrasound ablation procedure, and the post-ablation check.

| Part | Footage | Narration |
|---|---|---|
| **Part 1**<br>Case & Setup | Static images are sufficient — ultrasound stills, setup photos. | May be scripted and read. |
| **Part 2**<br>Intra-operative | Live footage. B-mode ultrasound is required; an RGB camera view of the operative field is a plus (see example below).<br>The ablation phase must be one continuous, real-time take — **no cuts, no speed-up.** | Narrate while watching the footage — voice in sync with the picture at all times. |
| **Part 3**<br>Post-op analysis | Live post-ablation scan — Doppler / contrast-enhanced ultrasound is dynamic footage. | Narrate while watching, in sync with the picture. |

*Example — RGB view of the operative field (left) + B-mode ultrasound (right), side by side:*



## 1. Part 1 — Case & Setup

This part may be scripted and narrated over static images. Cover the six items below.

| Item | What to cover | Example |
|---|---|---|
| **Patient profile** | Age band, sex, main complaint (de-identified). | *"A 45-year-old woman presenting with neck swelling and compressive symptoms."* |
| **Lesion** | Location, three-axis size, key sonographic features. | *"A right thyroid nodule, 46.5 × 27.6 × 46.6 mm, solid and well-defined."* |
| **Pathology** | The cytology / histology result that defines the lesion. | *"Benign nodules on FNA."* |
| **Chosen treatment** | The procedure finally chosen.<br>**Why**: the reason it was chosen over the alternatives. | *"We chose radiofrequency ablation because [reason]."* |
| **Device setup** | Ultrasound machine and probe; generator model and maximum power; electrode gauge and active-tip length; coolant.<br>**Why**: the reason for this configuration. | *"An 18G electrode with a 10-mm active tip from Starmed, because [reason] — e.g. the short tip gives finer control near the danger structures."* |
| **Anesthesia & sedation** | The choice of anesthesia/sedation; drug, dose, route.<br>**Why**: the rationale for this regimen. | *"IV midazolam 3 mg for comfort; 2% lignocaine to the skin and thyroid capsule, because [reason] — e.g. the capsule, not the gland, is pain-sensitive."* |

## 2. Part 2 — Intra-operative Narration

Narration must stay aligned with the footage: describe what is happening *now*, announce what you are *about to do*, and **never narrate what is not on screen**. Silence between events is fine.

**NO CUTS, NO SPEED-UP — the entire ablation phase must be one continuous, real-time take. Editing inside it breaks the timeline and invalidates the recording.**

The three **blue** types are the routine narration cycle for every step of the procedure — announce it, describe it, close it. The **orange** type is different: it draws on the operator's own experience — whenever the procedure reaches a spot that deserves special caution, emphasize it there.

| Type | What to say | Example |
|---|---|---|
| **What I will do next**<br>Plan & Intention | Say the next action before doing it. | *"Now I will start the ablation."* · *"Next I will move the tip one step superficial."* |
| **What we see now**<br>Real-time Procedure | **Needle**: tip position vs. landmarks — which unit, how deep.<br>**Image**: each new sign and its extent — anesthetic or dissection fluid spreading (anesthesia / hydrodissection); echogenic cloud growing / covering the unit (ablation).<br>**Visibility**: say when bubbles obscure the view or the tip is lost — and when it clears or the scan plane switches.<br>**Progress**: which units are done, which remain.<br>Within ~2 s, in the present tense. | *"The lignocaine is spreading along the thyroid capsule."* · *"The tip is now at the inferior pole."* · *"The echogenic zone is growing over the deep unit."* · *"Bubbles are obscuring the view — waiting for them to clear."* · *"The deep units are done; the medial superficial unit remains."* |

| Type | What to say | Example |
|---|---|---|
| **Finishing signal** Endpoint & Result | **With a visible sign**: say the sign that shows the step is done.<br>**Without one**: say what you have done — so the step is finished. | *"This unit is fully hyperechoic, so its ablation is finished." · "I have injected the lignocaine around the capsule, so the anesthesia is done."* |
| **Warn before risky steps** Abnormal Events | **Any step, any time**: whenever something abnormal appears, call it out and explain it.<br>**At danger points, per your experience**: warn before the maneuver + the mitigation. | *"We are approaching the danger triangle — lowering the power to 20 W." · "A small hematoma is forming; we compress for two minutes."* |

## 3. Part 3 — Post-op Ultrasound Analysis

After the procedure, verify the result on screen. Two things to narrate:

| Item | What to say | Example |
|---|---|---|
| **How I check** | Say what you are doing to verify — scan mode (grayscale sweep / Doppler / contrast-enhanced), plane, and what you are looking for. | *"I am now sweeping the whole nodule in the transverse plane, then checking its vascularity on Doppler."* |
| **What the image shows** | Describe the current image and link it to success — the signs that show the ablation is adequate. | *"The nodule is diffusely hyperechoic with no internal vascularity — the ablation is adequate."* |

## 4. Language Criterion

### General rules

| Rule | Requirement | Example |
|---|---|---|
| **Standard terminology** | Standard English terms; expand abbreviations on first use; one name per structure. | *"recurrent laryngeal nerve, RLN" — thereafter "RLN"* |
| **Numbers with units** | Always give numbers with units. | *"20 W" — not "low power", "fairly large"* |
| **No bare pointing** | Never a bare "here / this" — always name it. | *"the inferior pole of the nodule"* |
| **Timing** | Intentions before actions; events within ~2 s. | *"Now I will…" precedes the act* |
| **Silence** | Silence is fine; never narrate off-screen content. | — |

### Sentence templates

These templates are guides, not scripts: the exact wording is free, but keep their logic — the same kind of information should always follow the same structure. Square brackets mark the slots to fill.

| Purpose | Template | Example |
|---|---|---|
| **Step announcement** | "We now move to [step]." | *"We now move to hydrodissection."* |

| Purpose | Template | Example |
|---|---|---|
| **Plan & Intention** | “Now I will [action].” / “Next I will [action], expecting [sign].” | *“Next I will move the tip one step superficial.”* |
| **Anatomy** | “On screen is [structure], located [position].” | *“This is the common carotid artery, lateral to the nodule.”* |
| **Action call-out** | “Now [action], [key detail].” | *“Inserting the electrode through the isthmus now.”* |
| **Sign on the image** | “Note the [sign], indicating [meaning].” | *“Note the hyperechoic cloud, indicating this unit is ablated.”* |
| **Endpoint & Result** | “[Sign], so [step] is finished.” | *“The echogenic change covers the whole nodule, so the ablation is finished.”* |
| **Warning** | “Caution — [structure/risk] [position]; we will [mitigation].” | *“Caution — the RLN lies postero-medially; we lower the power to 20 W.”* |
| **Decision rationale** | “We choose [option] because [reason].” | *“We choose the trans-isthmus approach because the whole shaft stays visible.”* |