

What Is Mandible Reconstruction?

Mandible reconstruction is a surgery to **rebuild the lower jaw** (mandible) when it's been removed due to **cancer, trauma, or infection**. The goal is to restore the **function, shape, and appearance** of the jaw—so the person can **chew, speak, and look normal** again.

The options available for Mandible reconstruction are-

1. Free Fibula Osteocutaenous Flap (FFOCF)
2. Free Scapula-Parascapular flap
3. Pectoralis Major Myocutaenous flap (PMMC)

Free Fibula Osteocutaenous Flap FFOCF

What Is a Free Fibula Osteocutaneous Flap?

- The **fibula** is the smaller bone in your lower leg (below the knee). You don't need the entire bone to walk normally—so a portion of it can be used safely.
- "**Osteo**" means bone, and "**cutaneous**" means skin.
- This flap includes a **segment of bone**, along with **skin and its blood vessels** from the leg.

How Is the Surgery Done?

1. **Removal of Affected Jawbone:** The damaged or cancer-affected part of the jaw is surgically removed.
2. **Harvesting the Fibula Flap:** A piece of fibula bone, with its skin and blood vessels, is taken from the patient's leg.
3. **Shaping the Fibula:** The fibula bone is cut and shaped to match the jawbone that was removed.
4. **Rebuilding the Jaw:** The shaped fibula is attached to the jaw area using **titanium plates and screws**.
5. **Microsurgery:** The flap's blood vessels are **connected to neck vessels under a microscope**, ensuring proper blood supply to keep the new jawbone alive.
6. **Donor Skin Grafting:** The region of the leg where the skin has been taken is covered using small sheet of skin (skin graft) from the thigh.

*In selected cases teeth can also be placed over this jaw bone during the same surgery.

Why Use the Fibula?

- It's **strong and long enough** to replace the jaw.
- It allows **dental implants** later on.
- The **skin part** helps rebuild the mucosa (inside of the mouth) if soft tissue is also missing.
- The leg usually heals well with **minimal impact on walking**.

What's Recovery Like?

- Patients typically stay in the hospital for **4 to 6 days**.
- A **feeding tube (Ryle's tube)** inserted **via the nose** may be used at first to maintain nutrition.
- **Speech and swallow therapy** helps recovery.
- The leg heals well; **people walk normally** after recovery.

Benefits:

- **Restores facial symmetry**
- **Improves ability to chew and speak**
- **Allows placement of teeth/dental implants later**
- **Boosts confidence and quality of life**

Free Scapular-Parascapular Flap

What is a Scapular-Parascapular Flap?

This flap is taken from the **upper back**, near the **shoulder blade (scapula)**. It includes:

- A portion of **skin**
- **Soft tissue**
- **Bone from the shoulder blade**

All of this is transferred to the face to recreate the jaw and nearby tissues.

How Does the Surgery Work?

1. The **cancerous/damaged jawbone** is removed.
2. The surgeon then **removes skin, tissue, and/or bone** from the patient's back (near the scapula).
3. These are **shaped and placed** in the jaw area to recreate the missing parts.

4. The tiny blood vessels from the flap are **reconnected under a microscope** to blood vessels in the neck to keep the flap alive.

Why Choose a Scapular Flap?

- It gives **good-quality soft tissue** to recreate the inside of the mouth or cheek.
- It can also provide **bone**, to rebuild parts of the jaw.
- The donor site (back) **heals well** and doesn't affect shoulder movement much.
- It's especially useful when a large amount of **soft tissue** is needed for reconstruction.

What is Recovery Like?

- The patient may stay in the hospital for **5-6 days**.
- A **feeding tube (Ryle's tube) inserted via the nose** may be used at first to maintain nutrition.
- **Speech and swallow therapy** is started early.
- The **back heals well**, with a scar hidden near the shoulder blade.
- Over time, the person can **chew, speak, and look more like themselves** again.

Pectoralis Major Myocutaneous flap (PMMC)

What Is a PMMC Flap?

- A **pedicled flap** using tissue from the **pectoralis major** (chest muscle), including skin, muscle, and blood vessels.
- It's rotated up from the chest into the face and neck—no need for microsurgery (Joining blood vessels)

How the Surgery Works

1. The damaged part of the jaw is removed.
2. Surgeon shapes the PMMC flap on the chest—skin, muscle, and vessels together.
3. The flap is rotated to the head/neck through a tunnel under the skin.
4. The flap is stitched into place, addressing soft tissue defect.

BONE IS NOT RECONSTRUCTED IN THIS SURGERY

What to Expect in Recovery

- Hospital stay: 3-5 days.
- May need a feeding tube initially.
- Early physiotherapy helps with swallowing and speaking.
- Most patients regain decent function; complications occur but are usually manageable.

Who Is a Good Candidate?

- Patients in **resource-limited settings** or with comorbidities.
- Useful when a **free flap fails** or isn't feasible due to health/surgical constraints.

But Here's Why It's Not Ideal for Rebuilding the Jaw:

1. It Lacks Bone

- The PMMC flap is made of **soft tissue only—no bone**.
- That means it **cannot recreate the jawbone itself**.
- So, it's **not a true reconstruction** of the mandible—just soft tissue coverage.

"Think of it like covering a broken wall with a curtain, instead of rebuilding it with bricks."

2. Poor Cosmetic Outcome

- The flap is often **bulky and thick**, which can leave the face **unbalanced or unnatural looking**.
- It doesn't restore the original **shape or contour** of the jaw.

3. Function Is Not Fully Restored

- Since there is **no bone support**, **chewing**, **speech**, and **jaw movement** may remain impaired.
- **Dental implants** or artificial teeth cannot be placed on a soft tissue flap.

4. More Complications

- The chest flap may develop **partial skin loss**, **wound infection**, or **fluid collection**.
- There's also a **visible chest scar**, and it may pull or stretch over time.

5. An Outdated Option

- PMMC flaps were popular **before microvascular free flap techniques** were widely available.
- Today, they are considered a **backup option** in hospitals where **modern reconstruction (like fibula or scapula flaps)** is not feasible.

"The PMMC flap is like a band-aid for the face. It can help cover a wound, but it doesn't rebuild the jaw. It's used only when better options like bone flaps from the leg (fibula) or back (scapula) aren't possible."