

# Perioperative Care in Rhinoplasty

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# Disclosures

- Quality Medical Publishing: Video-library
- Marina Medical: Instrumentation
- Toriumi Rhinoplasty Book
- Toriumi Anti-inflammatory Diet Book

# Perioperative Patient Care

- Perioperative patient care is important for many reasons
  - Benefit the patients healing and recovery
  - Lets the patient know that you are doing all you can to help them heal
  - As physicians we are always reacting to disease instead of working to prevent disease

# Hyperbaric Oxygen Therapy

- HBO has been around for many years and has been used with great success
  - Primarily used for chronic wounds
- HBO has tremendous value in the surgical field



# Hyperbaric Oxygen Treatment (HBOT)

- Hyperbaric oxygen
  - Pressurized chamber with increased pressures (2.2 to 2.6 atm)
  - Five to seven dives
  - Higher oxygen levels (up to 100% O<sub>2</sub>)
  - Pushes oxygen into the blood at higher levels
  - Decreases inflammation
  - Increases stem cells
    - » Double with single treatment
  - Accentuates effect of nanofat



# Postoperative HBO

- All revision rhinoplasty patients
  - Five to seven days postop
  - 2.2 to 2.6 atm pressure
  - 100% oxygen
  - One-hour sessions
  - Some do preop as well



# HBO Study

- The purpose of the study is to determine if HBO can decrease complication rates of highly complex rhinoplasty to levels of cases of average complexity

# Materials and Methods

- Retrospective chart review
- Data Analysis
  - Rhinoplasty cases from 2019 to 2024
  - All rhinoplasties were rated on complexity using “Rhinoplasty Difficulty Scale” (RDS)
- Complication rates were determined for high-risk cases treated with HBO and compared to complication rates for average complexity cases not treated with HBO
- Complications included infection, composite graft failure, skin compromise, wound healing issues, problems requiring early intervention



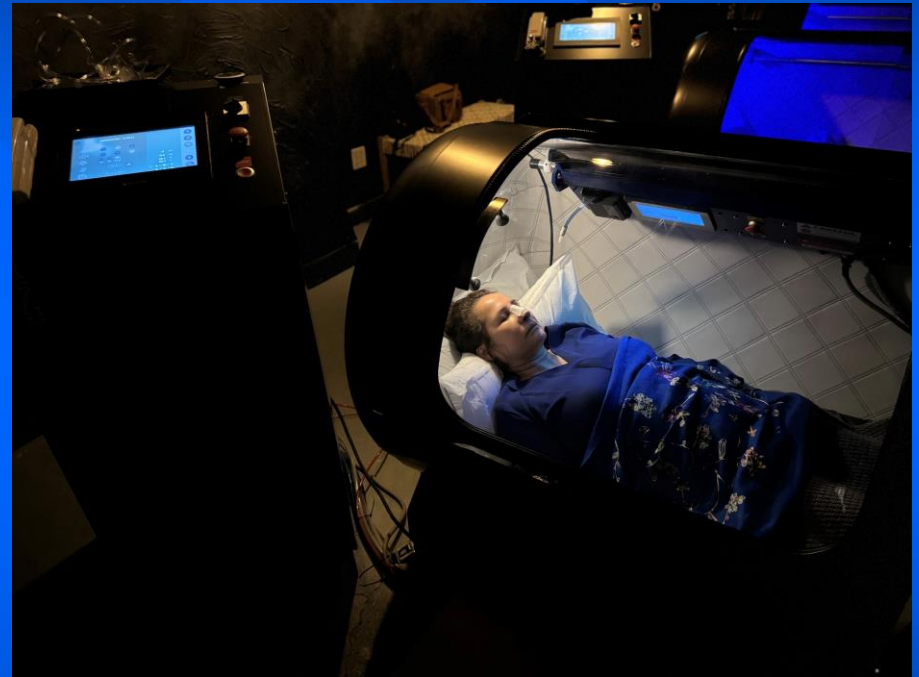
# Rhinoplasty Difficulty Scale (RDS)

RDS rates the difficulty level of different rhinoplasty techniques

- In order to validate the RDS, a group of sixty-four surgeons of differing levels of expertise and years in practice were surveyed
- The surgeons were asked to rate sixty key indicator techniques using the RDS to provide ordinal data with a categorical median for each designated technique.
- The RDS was used to rate the difficulty of the cases evaluated in this study and given a complexity rating of 0 to 10
- This allowed relative comparison of case complexity
- Previously validated but not yet published

# Hyperbaric Oxygen Treatments

- Patients were treated with one-hour sessions at 100% oxygen
- 2.2 to 2.6 ATM pressure
- Treatments were daily beginning on the first postoperative day



**Analysis of cases from 2019 to 2024 (N=811)**

Cases prescribed HBOT	343	42%	Cases not prescribed HBOT	467	58%
Primary Rhinoplasty Cases	60	17%	Primary Rhinoplasty Cases	112	24%
Revision Rhinoplasty Cases	71	21%	Revision Rhinoplasty Cases	191	41%
Minor Revision Cases	212	62%	Minor Revision Cases	164	35%
Avg Case Complexity Rating (0 to 10)	7.58		Avg Case Complexity Rating (0 to 10)	5.99	
Post-op Infection Rate	6	1.75%	Post-op Infection Rate	12	2.57%
Absolute Risk Reduction (ARR)	0.82%				
Number Needed to Treat (NNT)	122				
Post-op Complication Rate	6	1.75%	Post-op Complication Rate	16	3.43%
Absolute Risk Reduction (ARR)	1.68%				
Number Needed to Treat (NNT)	60				

p = <0.001 (Student t-test)

(Two-proportions test)

p = 0.435

(Two-proportions test)

p = 0.217

(Two-proportions test)

p = 0.150

(Two-proportions test)

p = 0.147

# Key Take Away Points

- The average complexity of cases treated with HBO was **RDS of 7.58** and average complexity for cases not treated with HBO was **RDS of 5.99**
- There were six complications in the HBO group for a complication rate of **1.75%**
- There were sixteen complications in the non-HBO group with a complication rate of **3.43%**
- Despite having a higher RDS rating (more complex surgery), the complication rates were lower in the HBO-treated patients
- The p-value is 0.112



# Absolute Risk Reduction (ARR)

- The amount of risk mitigated by treatment with HBO
- In regards to the complication rate, this is 1.68% risk reduction using hyperbaric oxygen therapy (HBOT)



# Findings

- Treating highly complex rhinoplasty patients with postoperative HBO lowered complication rates to comparable rates of average complexity cases not treated with HBO

# Diet can have a tremendous impact on postoperative healing

Inflammation can negatively impact postoperative healing and increase the likelihood of postoperative infection

Efforts to decrease inflammation have proven to improve healing

# Anti Inflammatory Diet

- Inflammatory foods trigger significant nasal inflammation
  - Trigger allergies
  - Increases nasal edema after surgery
  - Increase intranasal edema and obstruction
- Anti inflammatory diet decreases inflammation
  - Improves allergies
  - Helps to decrease nasal edema
  - Helps to decrease intranasal edema and promotes healing

# Anti Inflammatory Diet

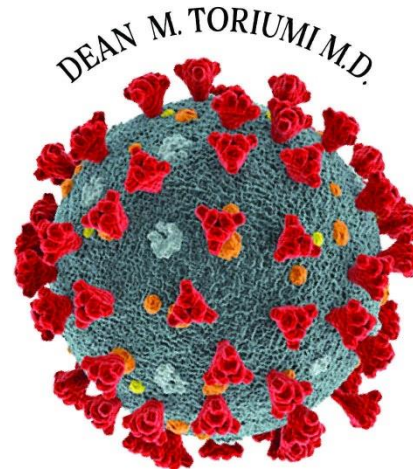
- No sugars or simple carbohydrates
  - No sugars (juices, alcohol, some fruits, etc.)
  - No pasta, bread, potatoes or rice
  - No dairy products
  - Complex carbohydrates such as vegetables are fine (broccoli, cauliflower, asparagus, etc.)
  - Proteins include chicken, fish, low fat meats (organic, wild, not farm raised)
  - Matcha instead of coffee
- Patients go on the diet for one month postop

Put my patients  
on this diet to aid  
in recovery

[Toriumidiet.com](http://Toriumidiet.com)



ANTI-  
INFLAMMATORY  
DIET  
IN THE ERA OF COVID-19



DEAN M. TORIUMI M.D.



# Postoperative Acupuncture

- Acupuncture
  - Three daily treatments postoperatively
  - Helps with postoperative pain
    - » Rib cartilage harvest site
    - » Ear cartilage harvest site
    - » Joint pains





Thank You





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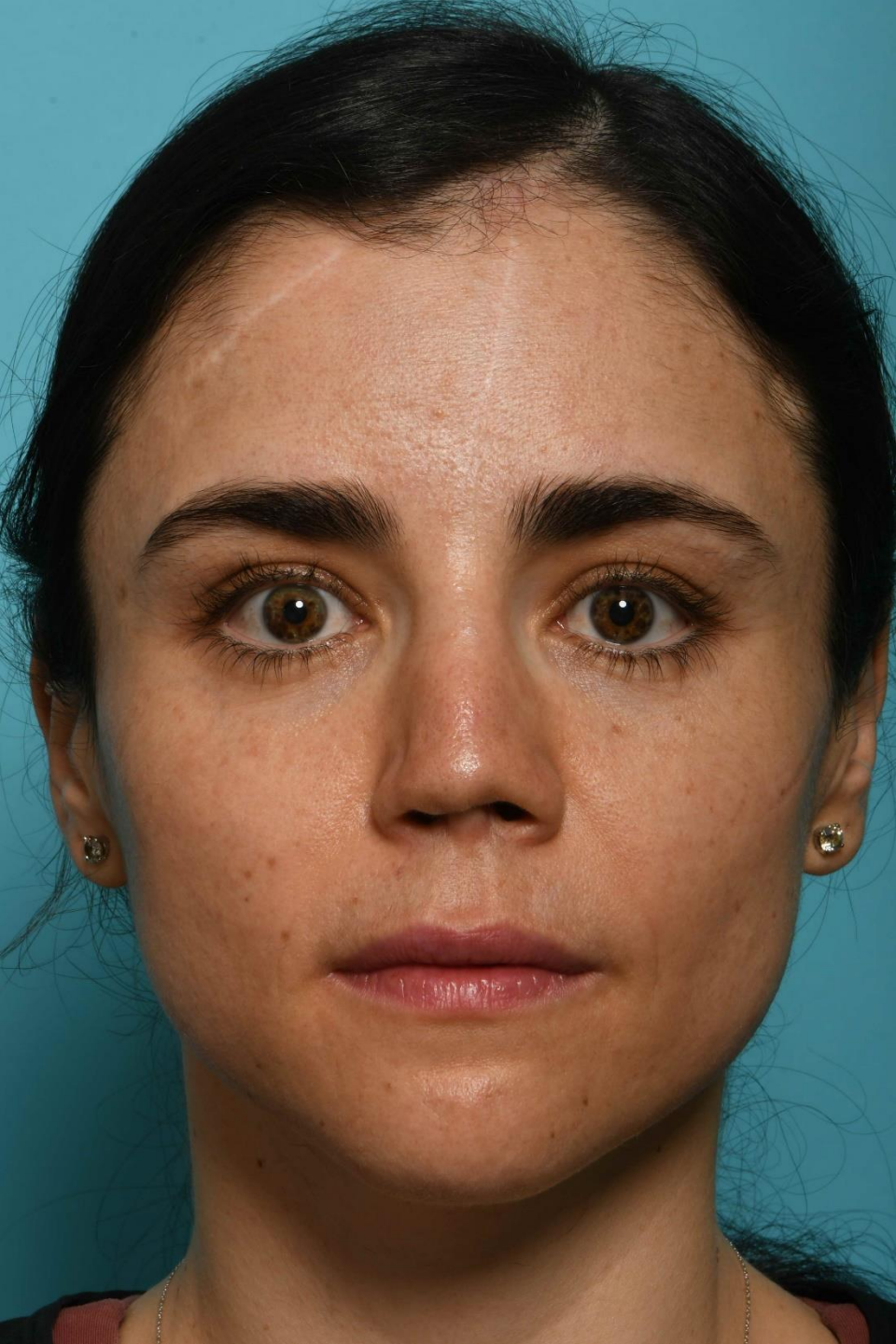


# Improving Composite Graft Survival

- Nanofat injected around periphery of larger composite grafts
- Treat patients with hyperbaric oxygen postoperatively
  - Seven days consecutive
  - One hour dives
  - 100% O<sub>2</sub>
  - 2.2 to 2.6 atm pressure













indications:

Steroids

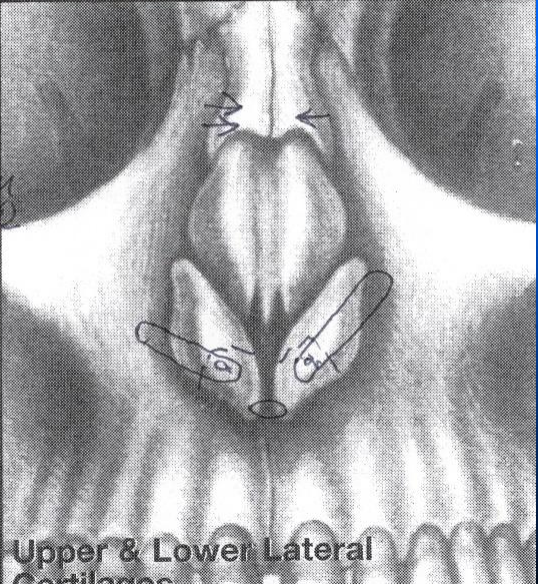
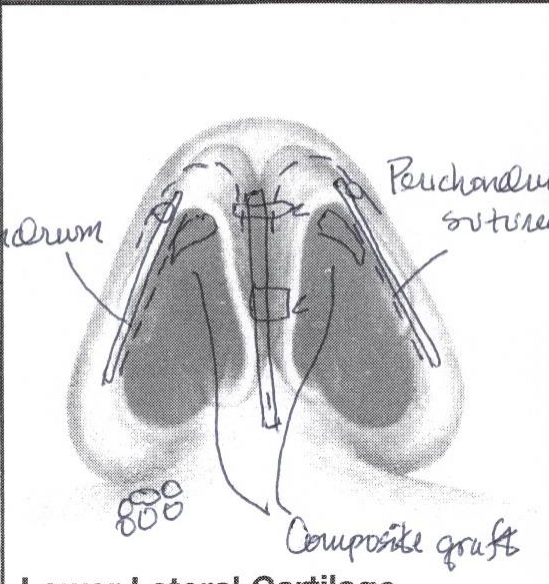
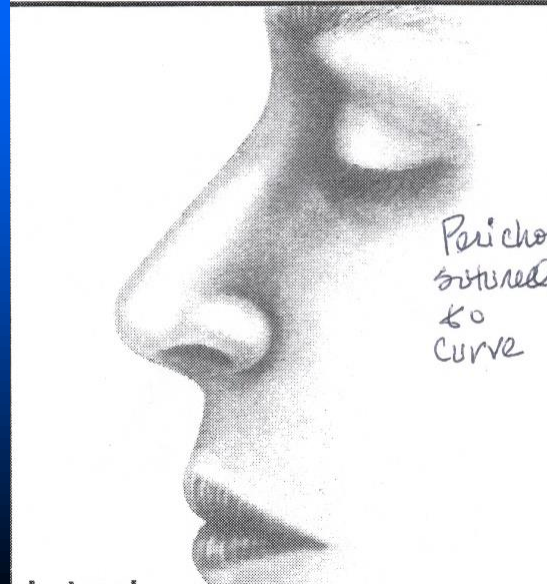
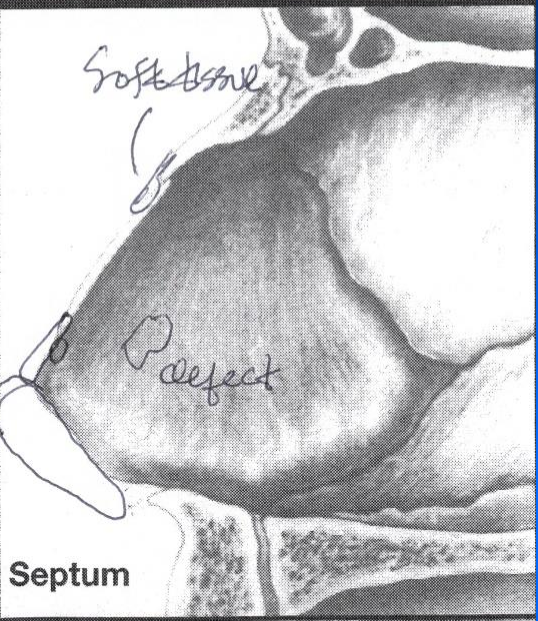
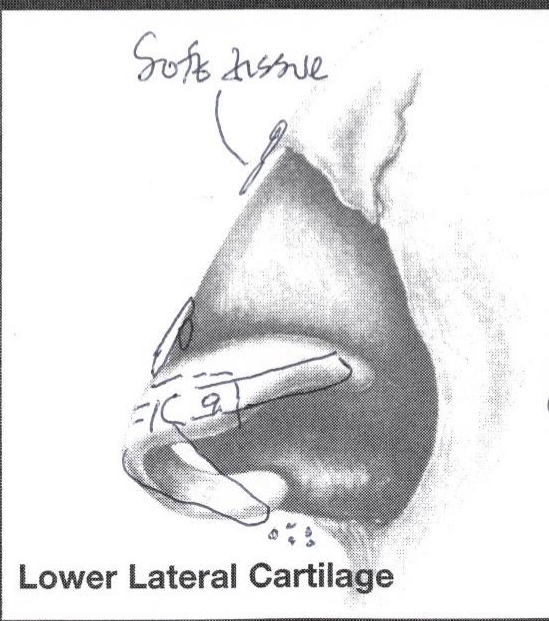
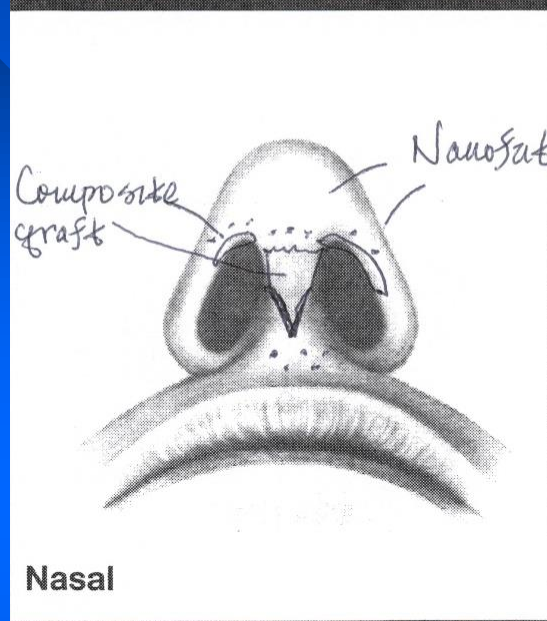
Antibiotic Systemic

Antibiotic Ointment

Antibiotics Lavage



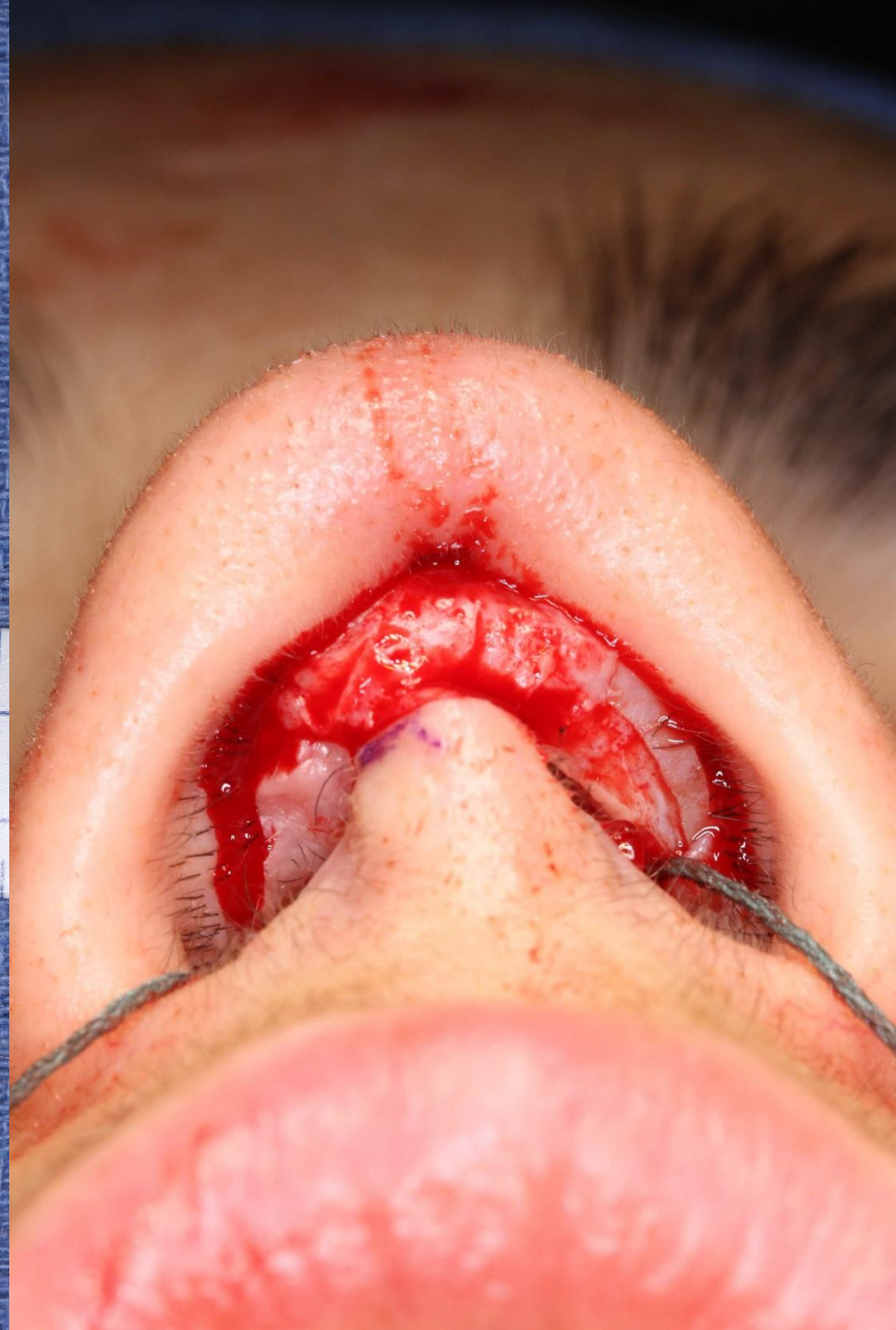
# Composite graft to columella



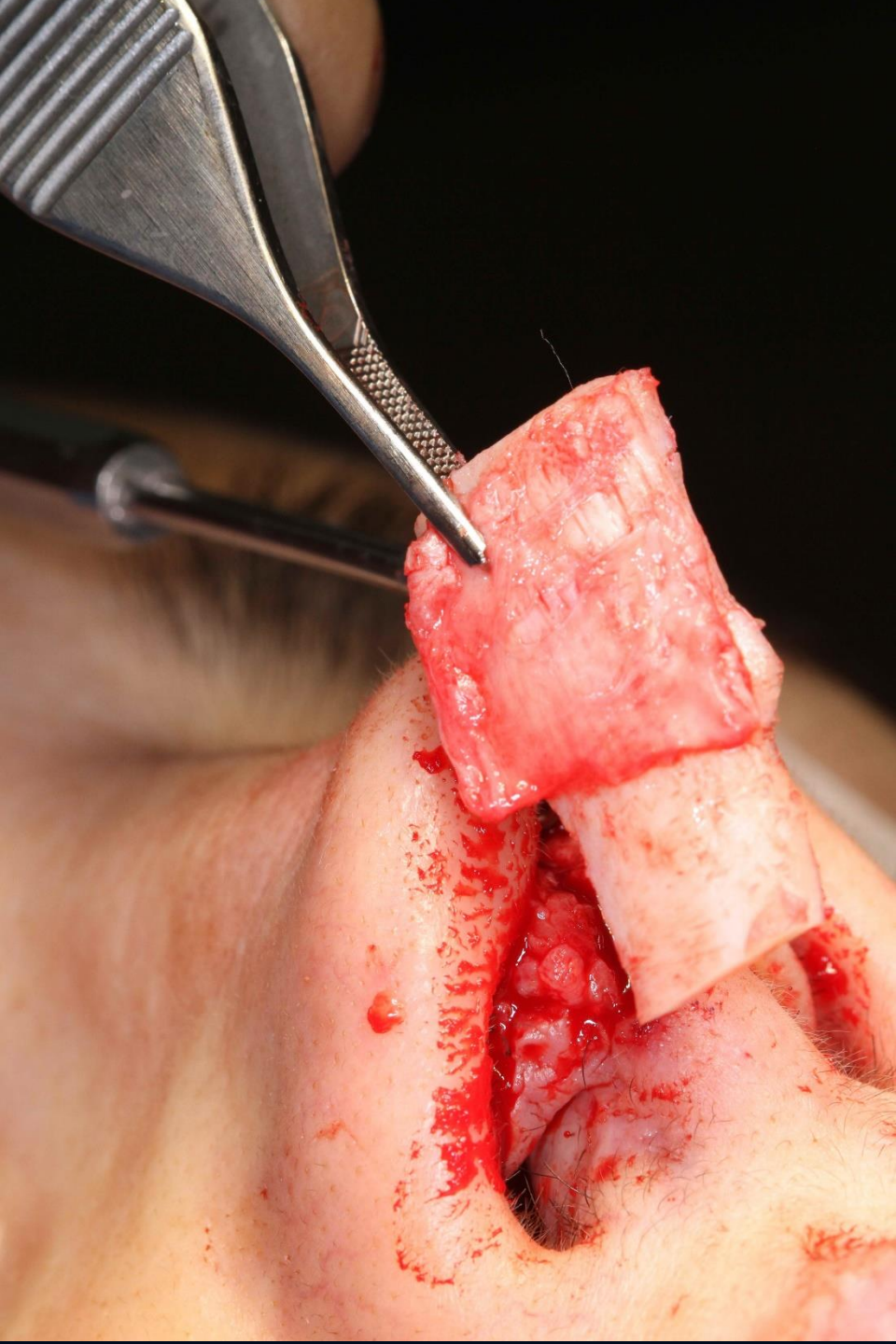




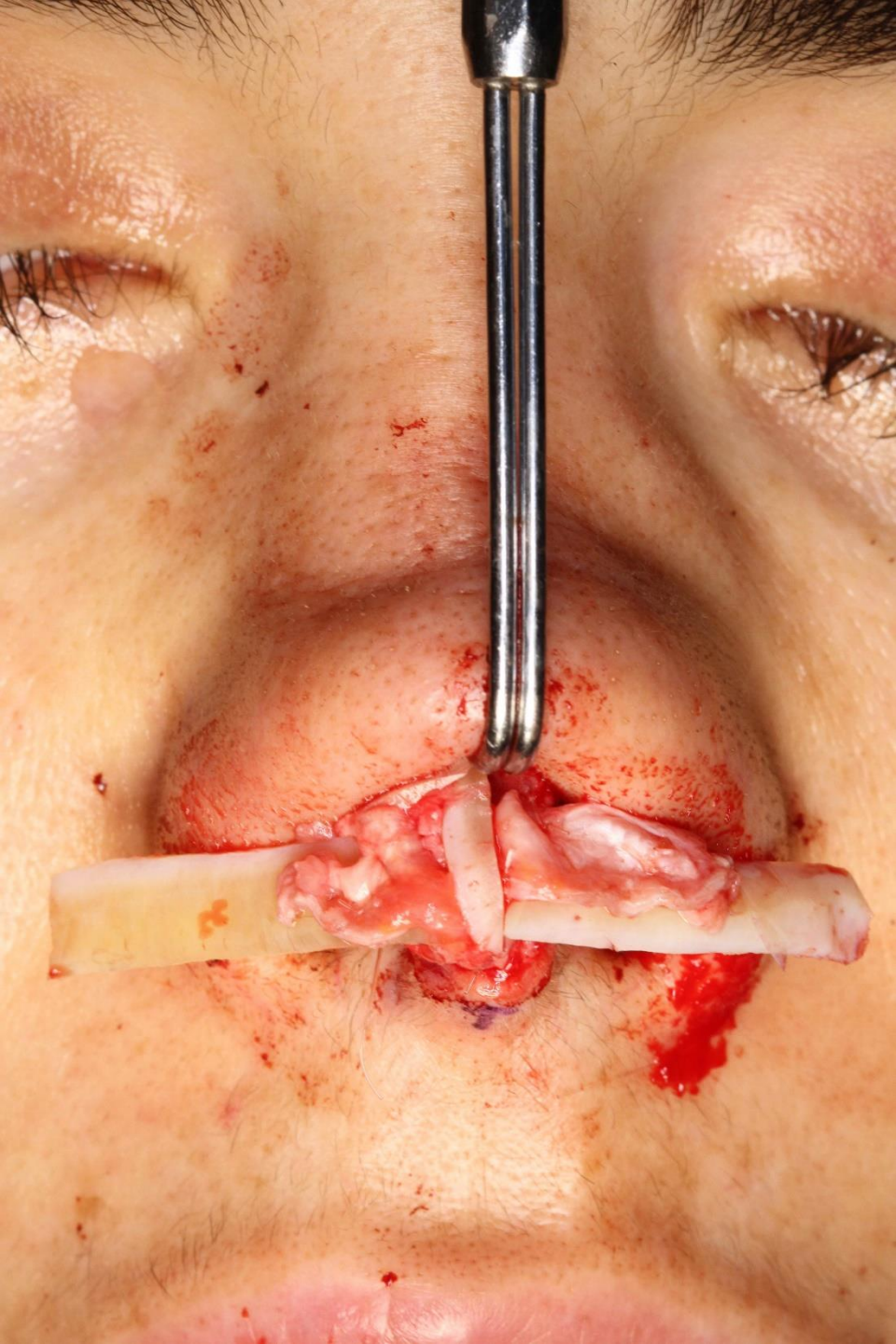
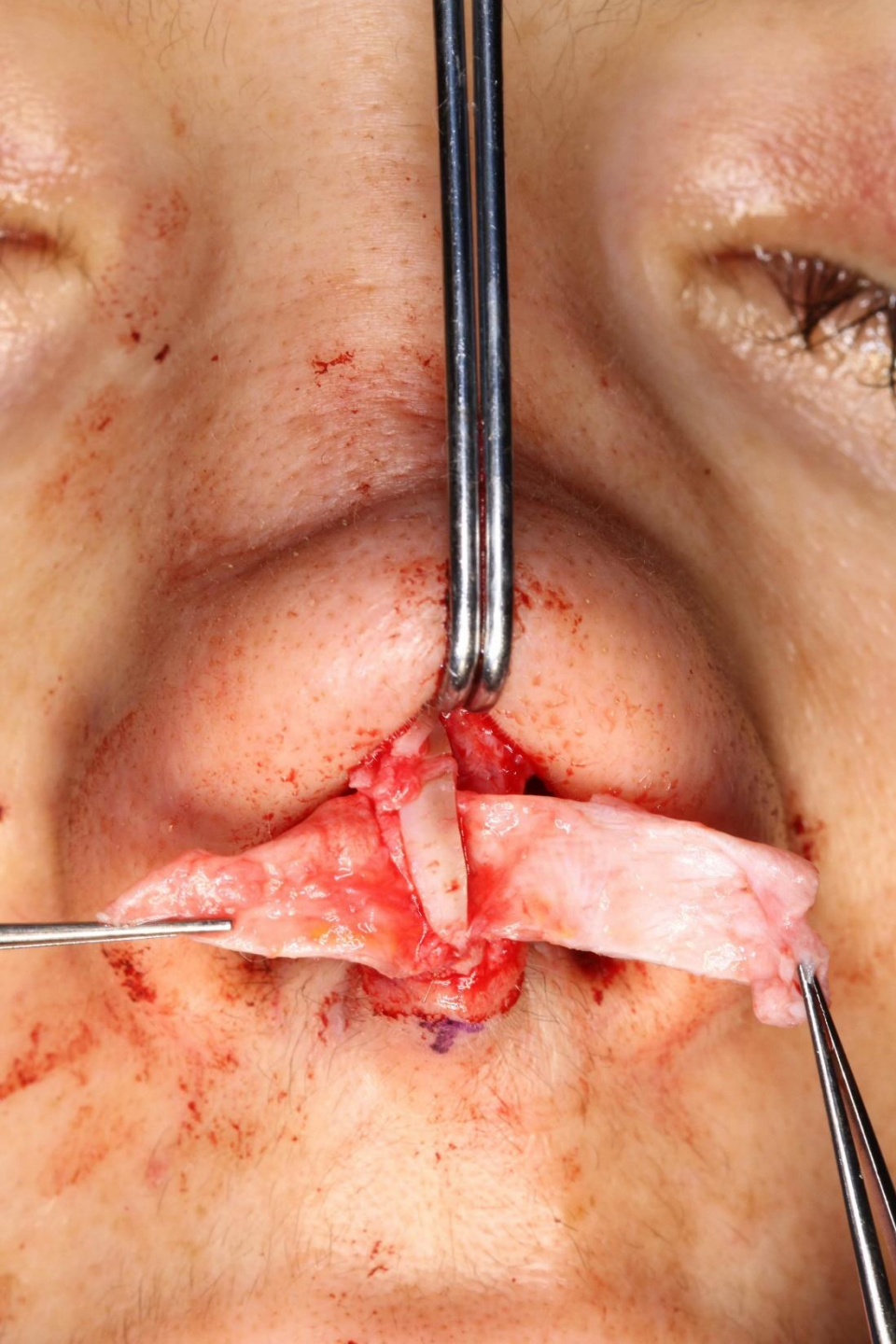




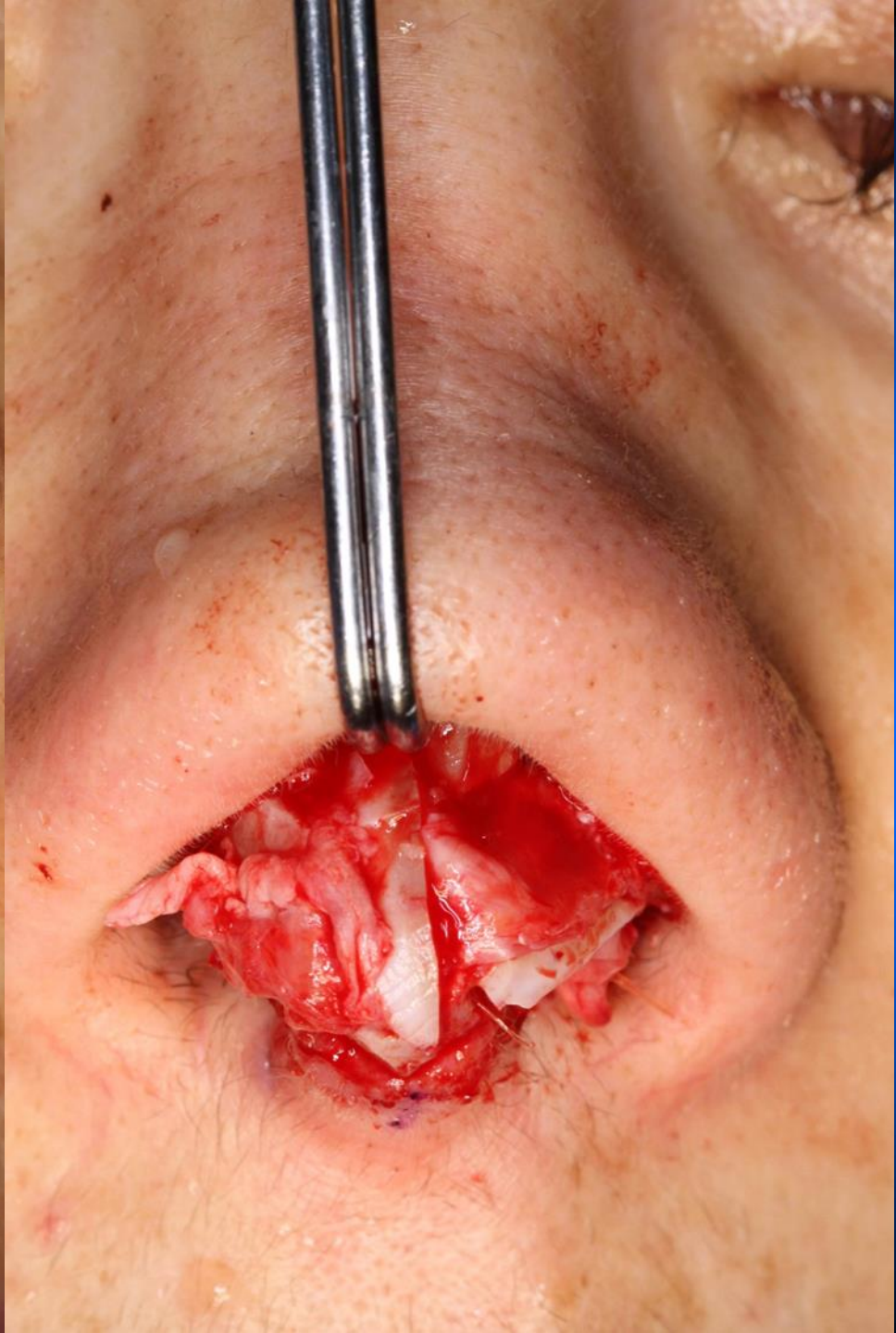
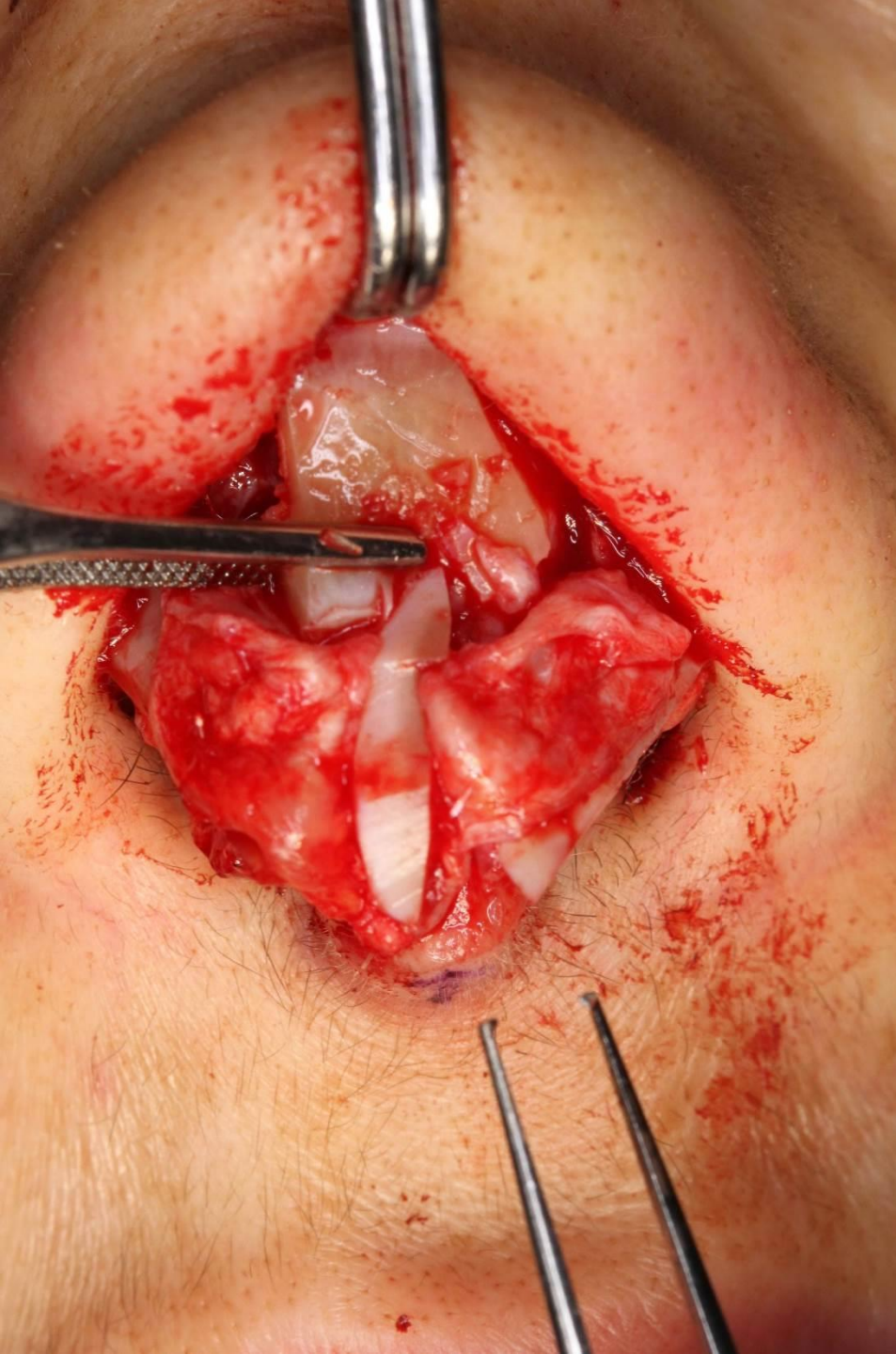




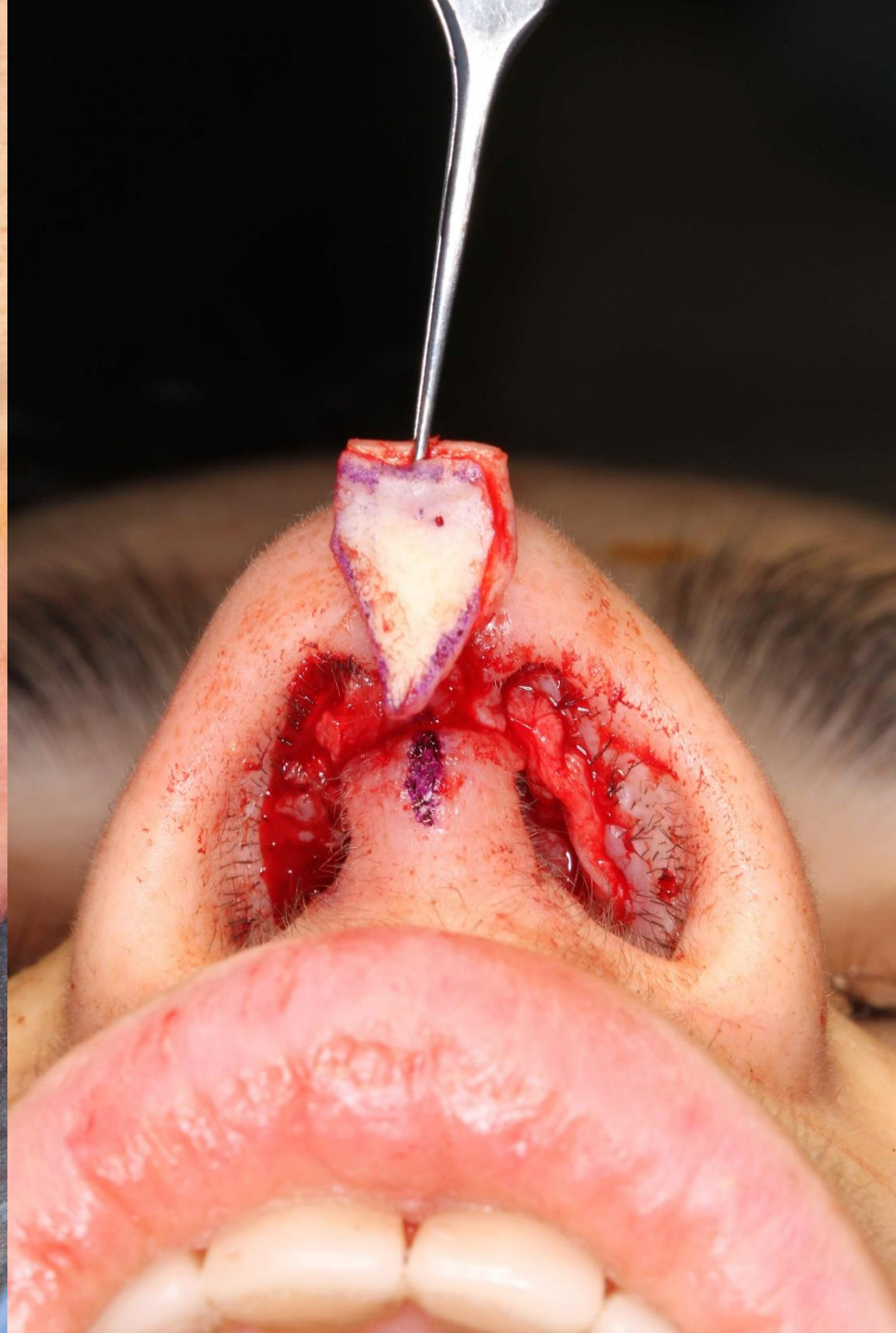








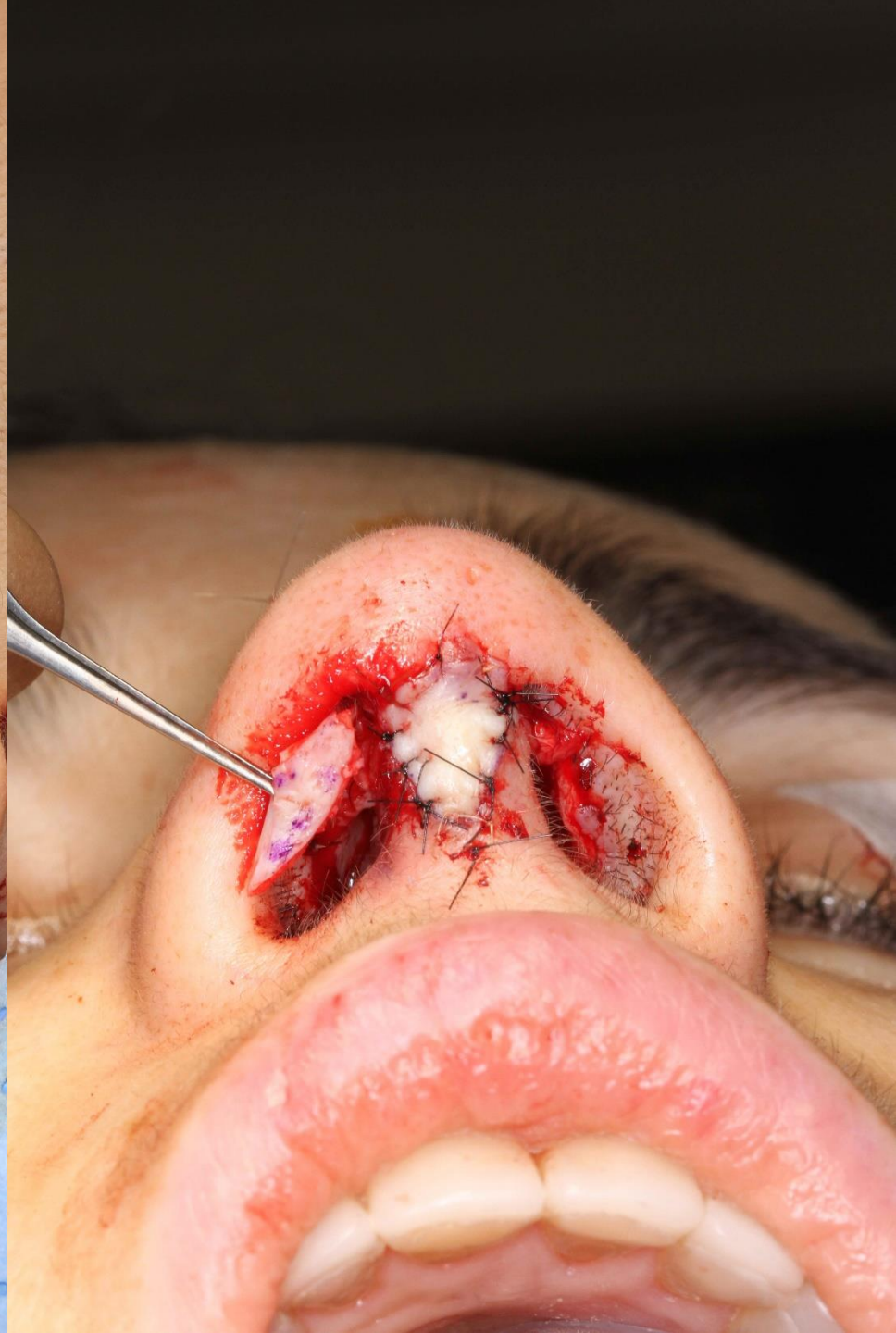
















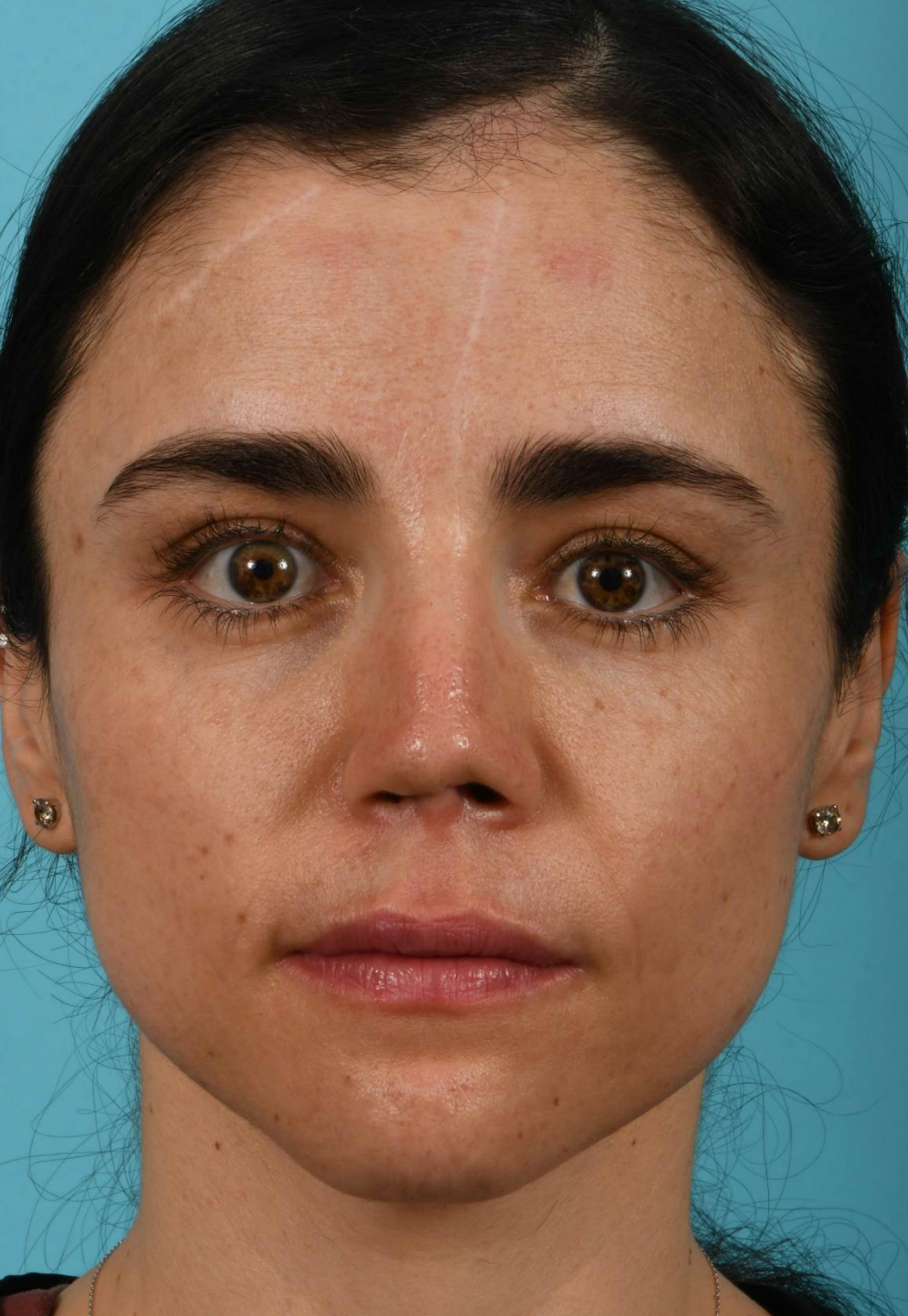




























# BAT Composite Graft

- Composite graft shaped like a bat with extensions into nasal vestibule
  - Perichondrial underlay technique
  - Nanofat and HBO







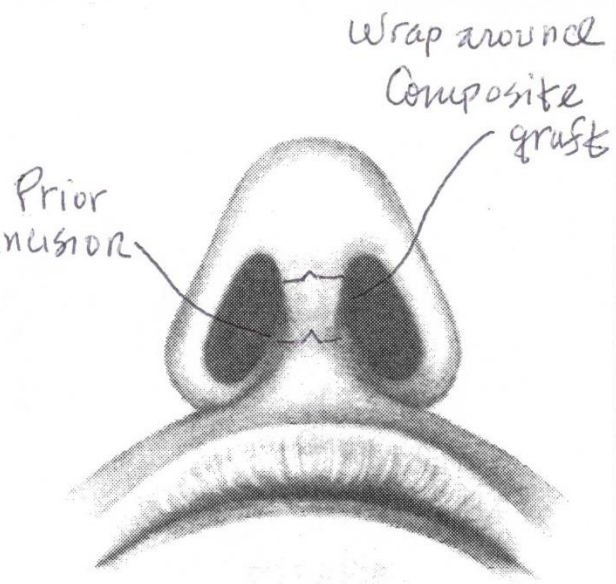




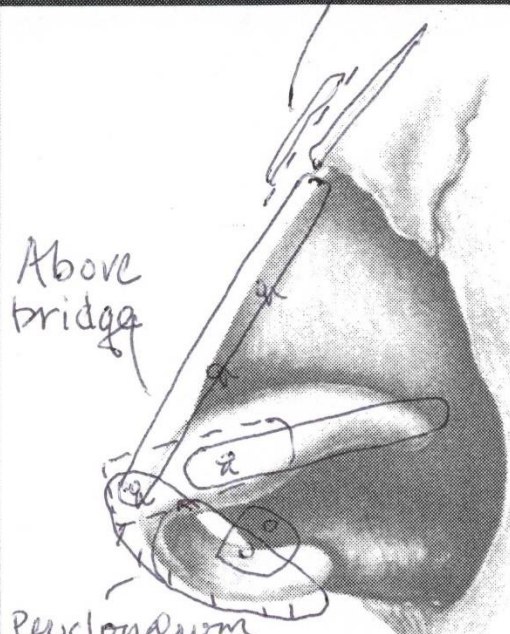




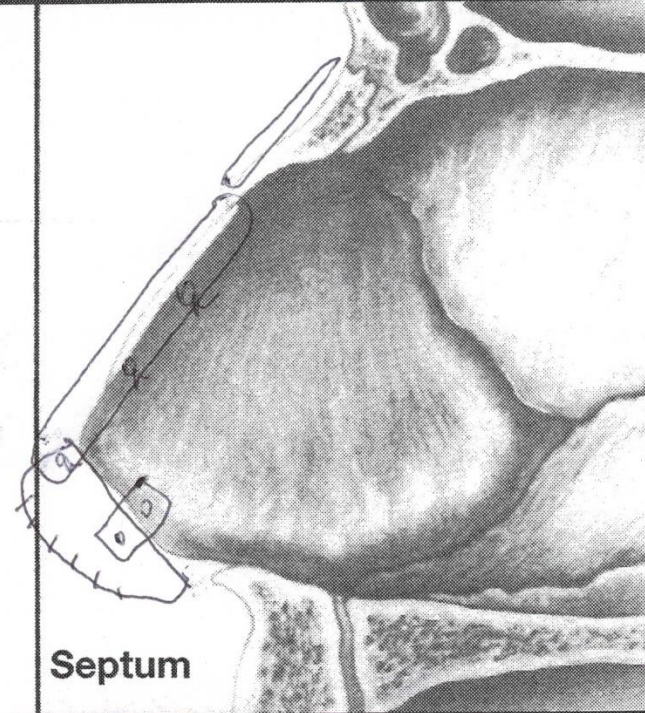




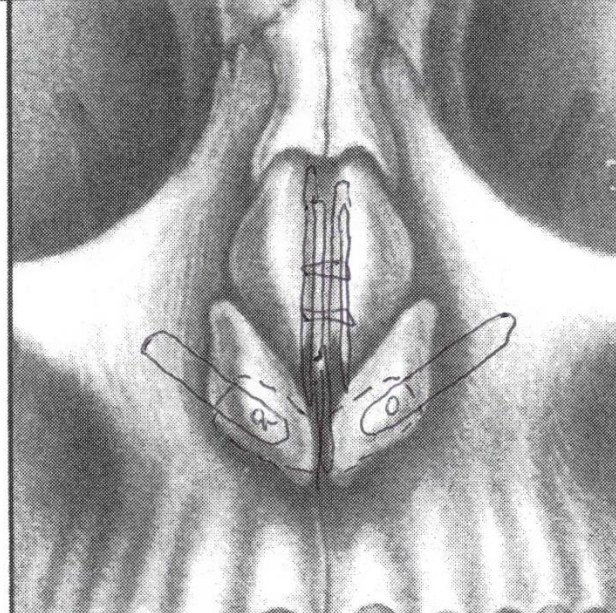
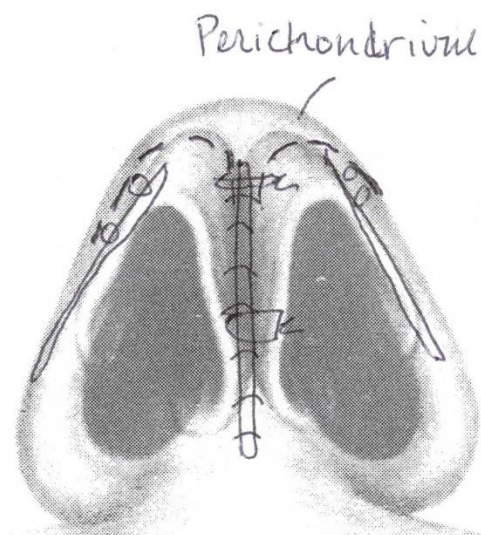
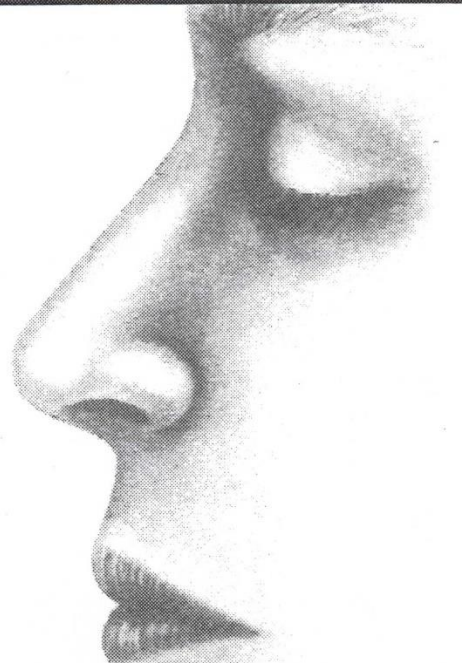
Nasal



Lower Lateral Cartilage

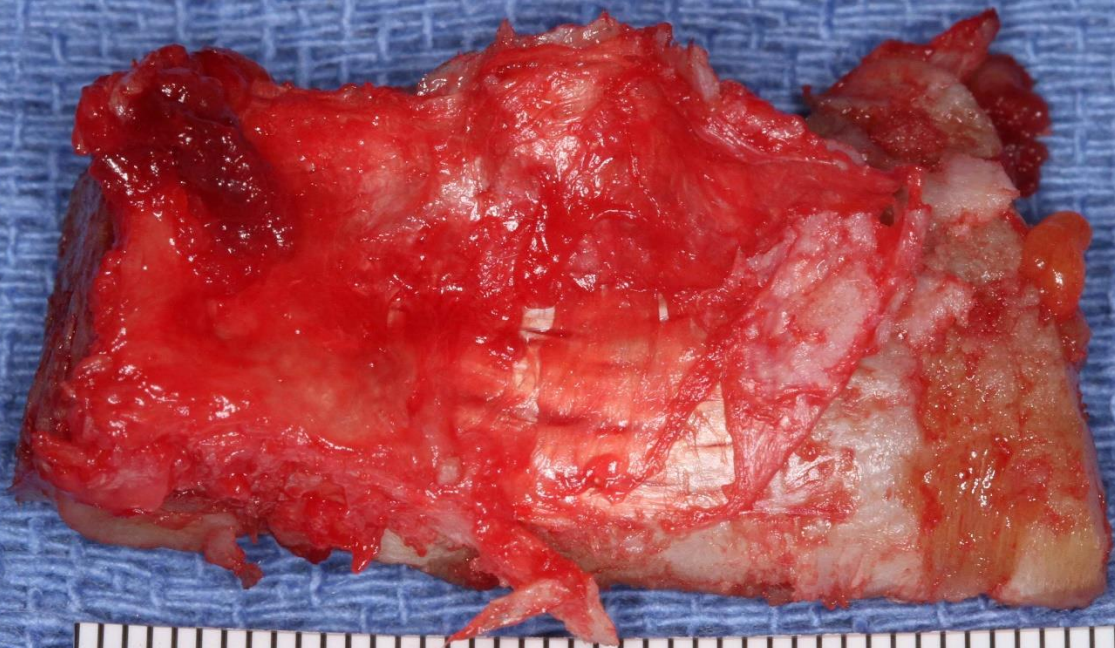


Septum



Upper & Lower Lateral

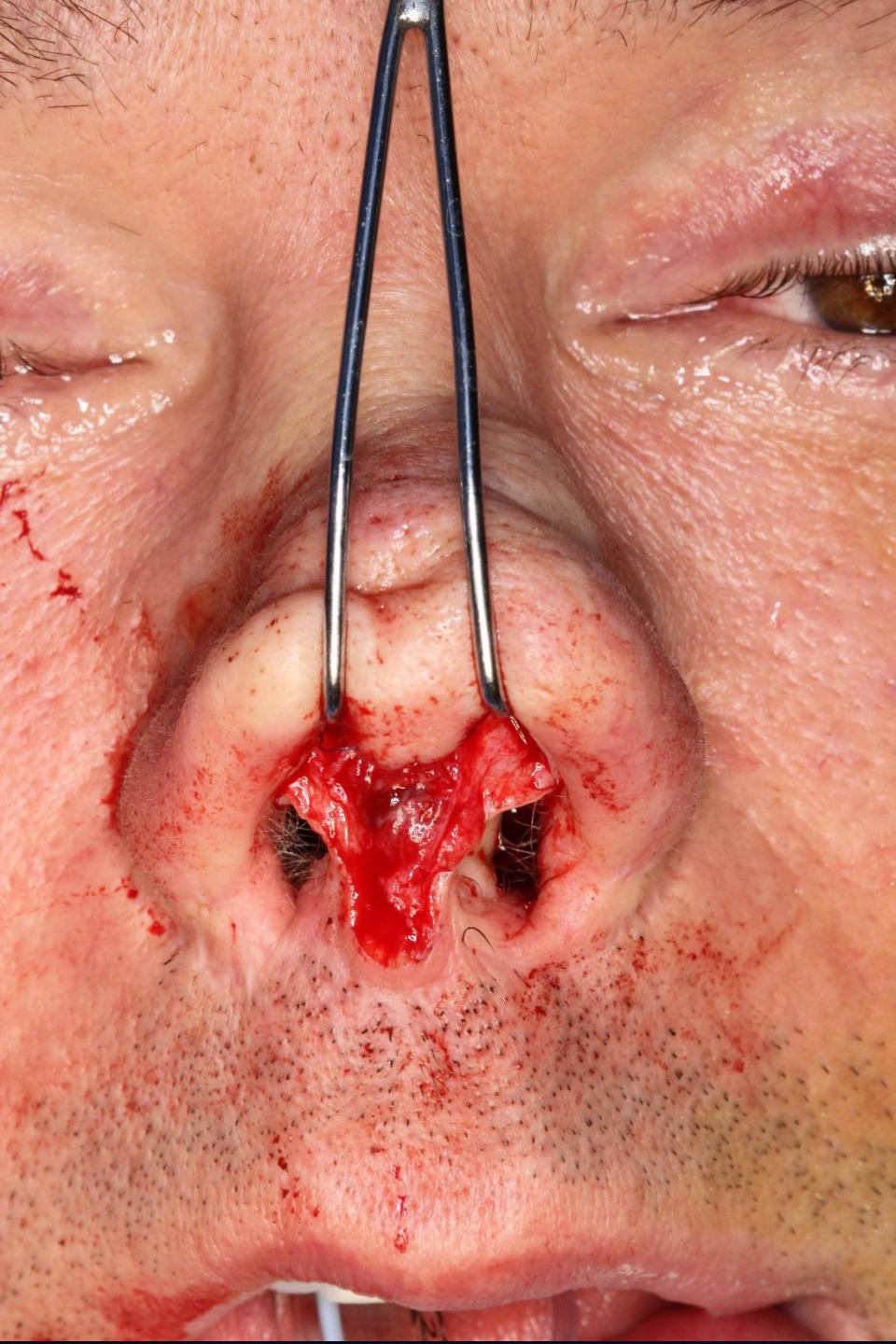






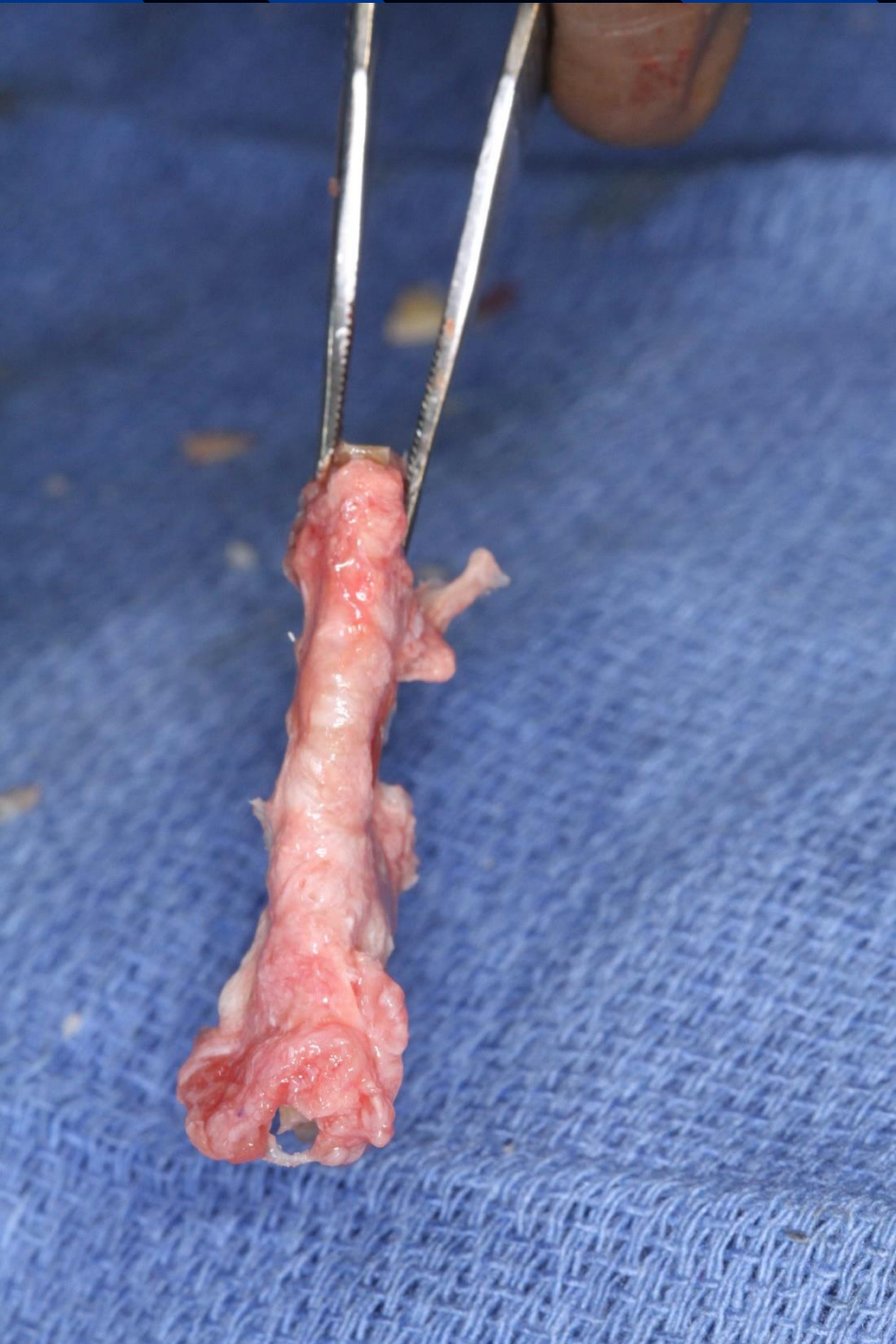




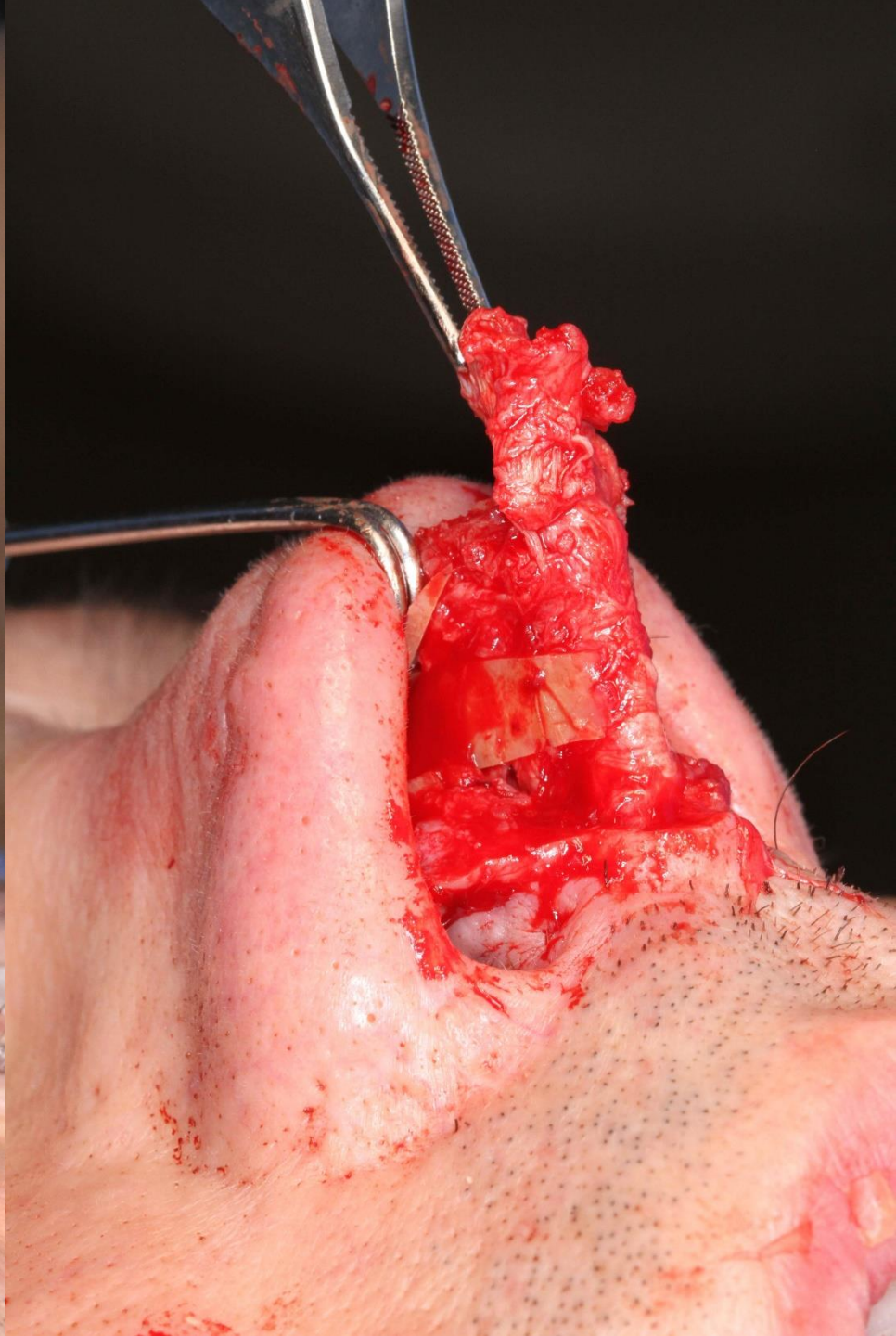




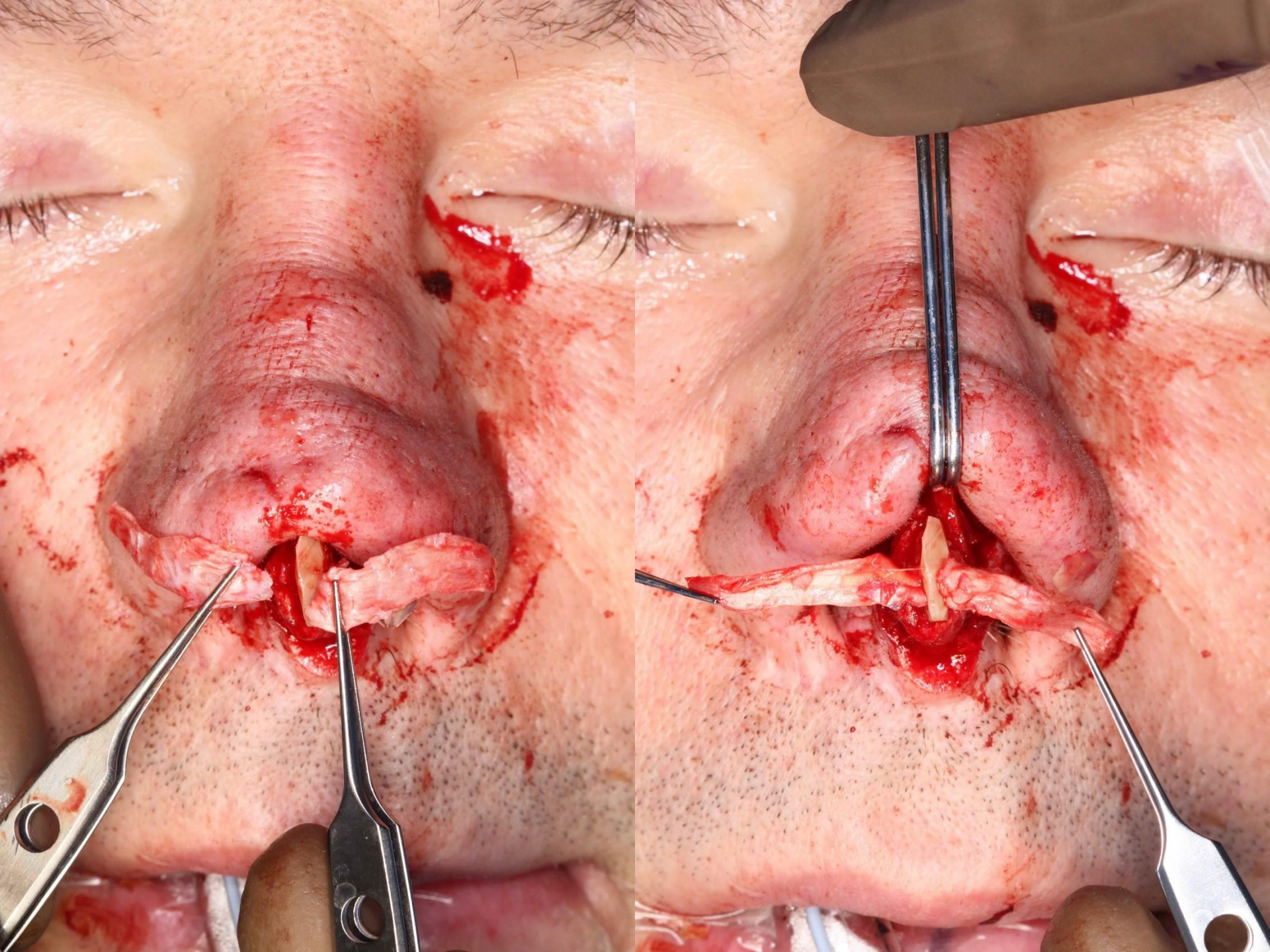




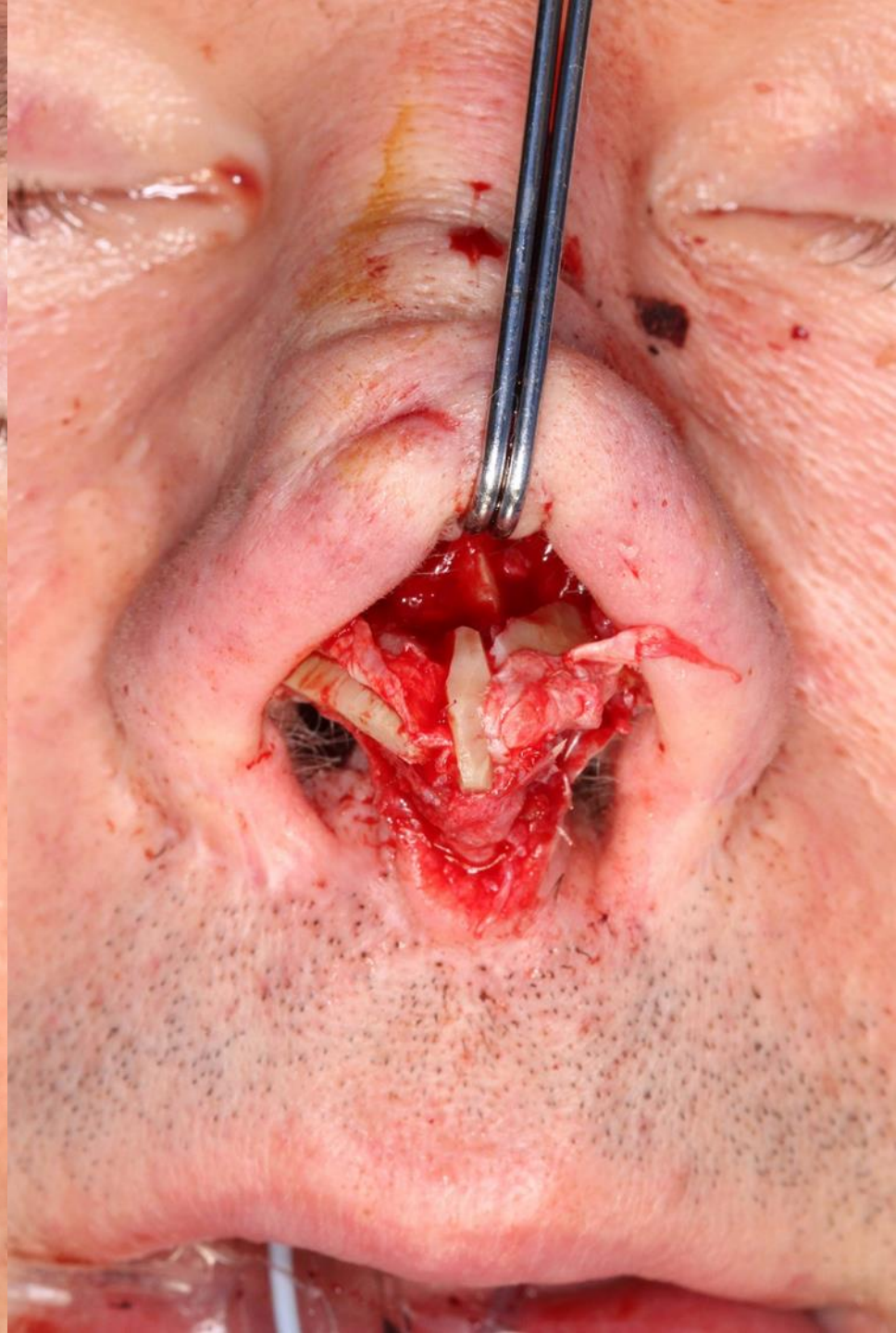
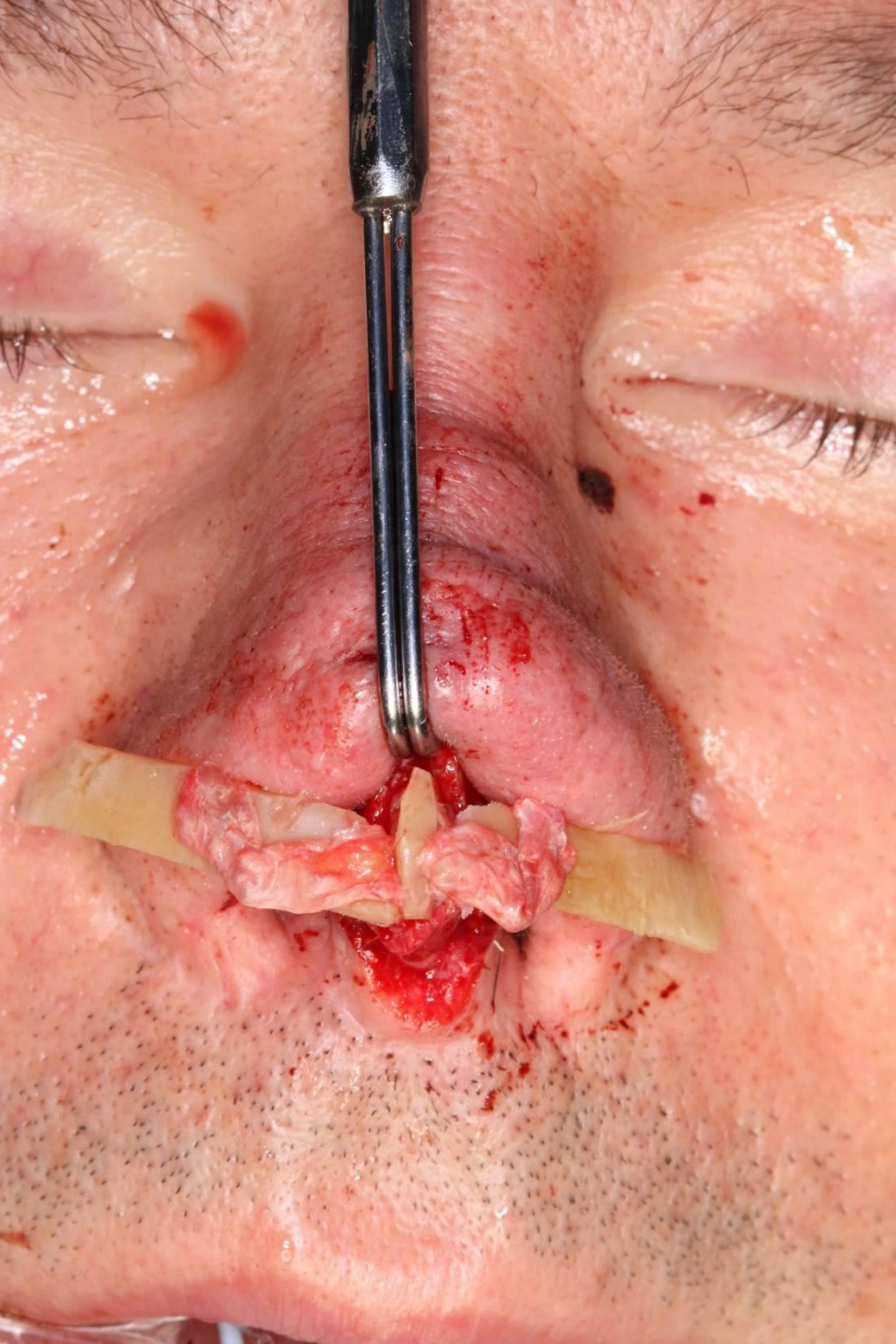




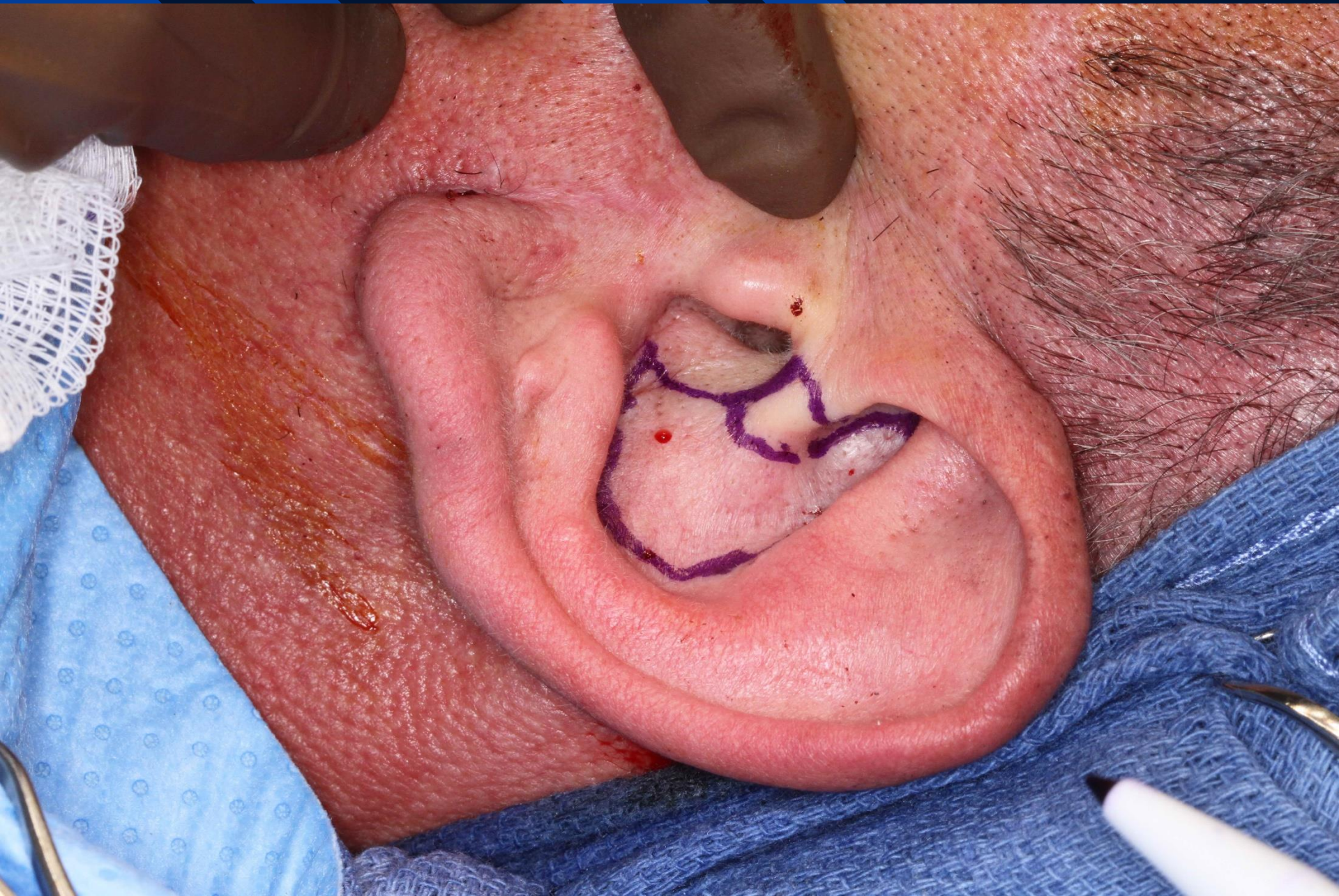












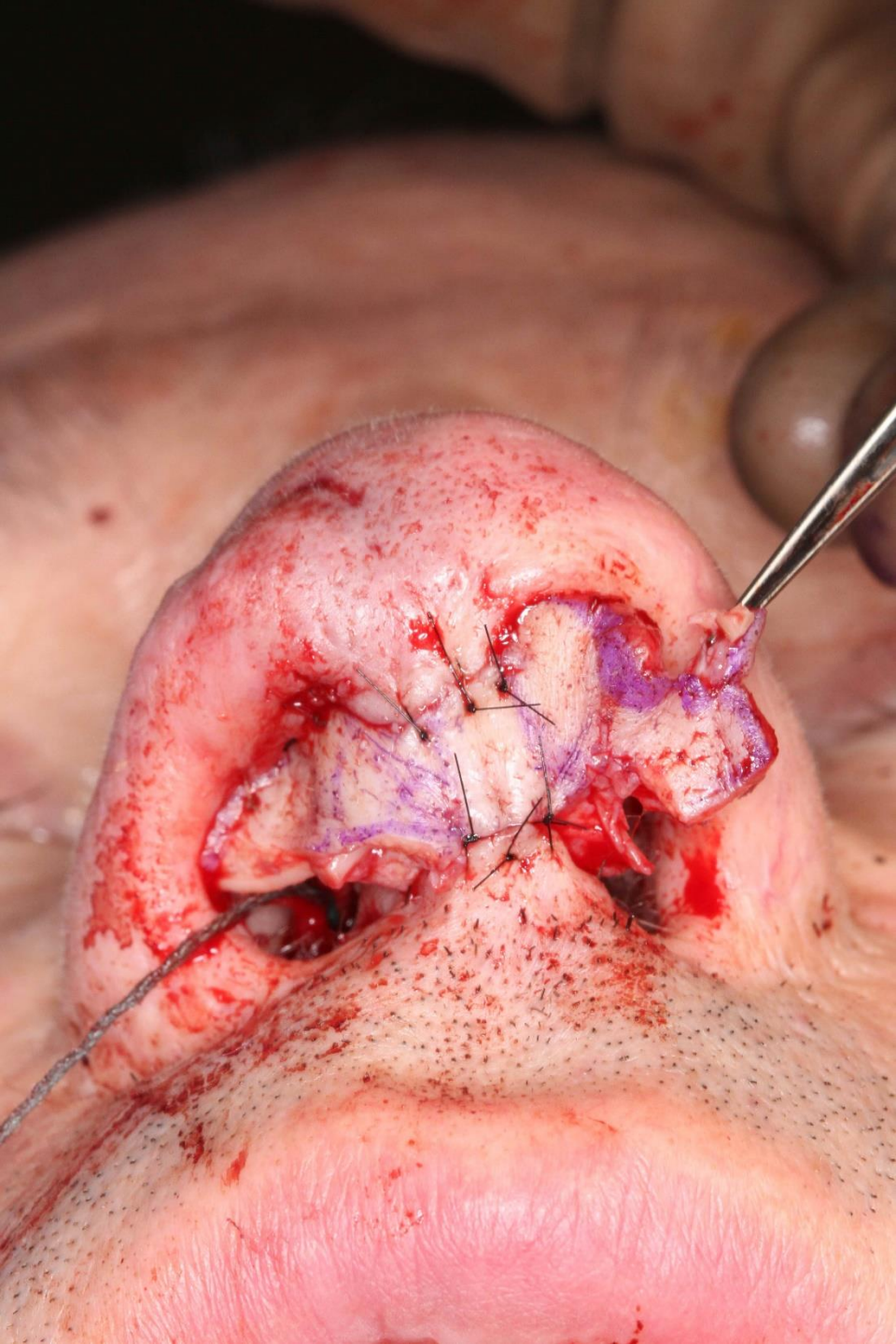


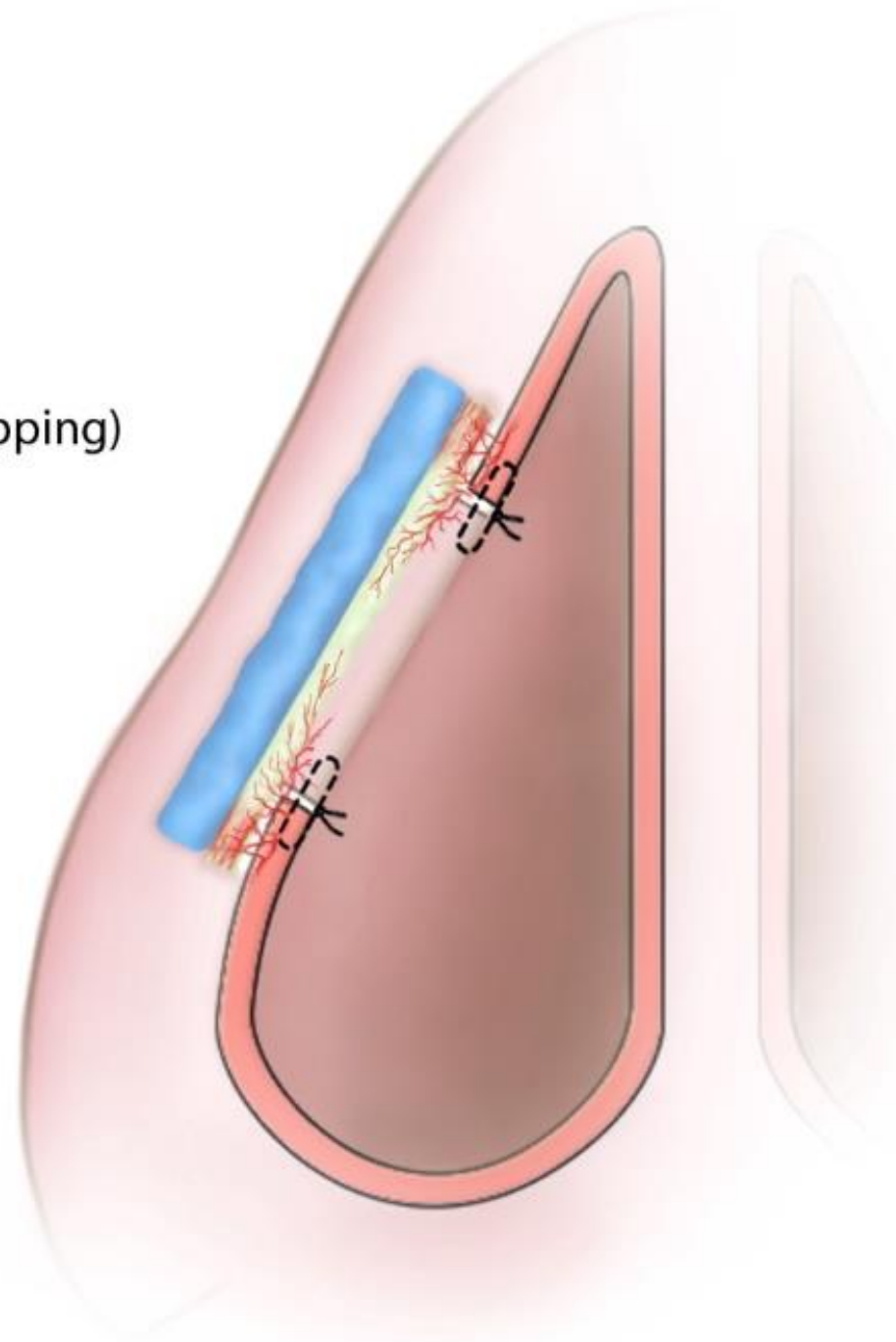
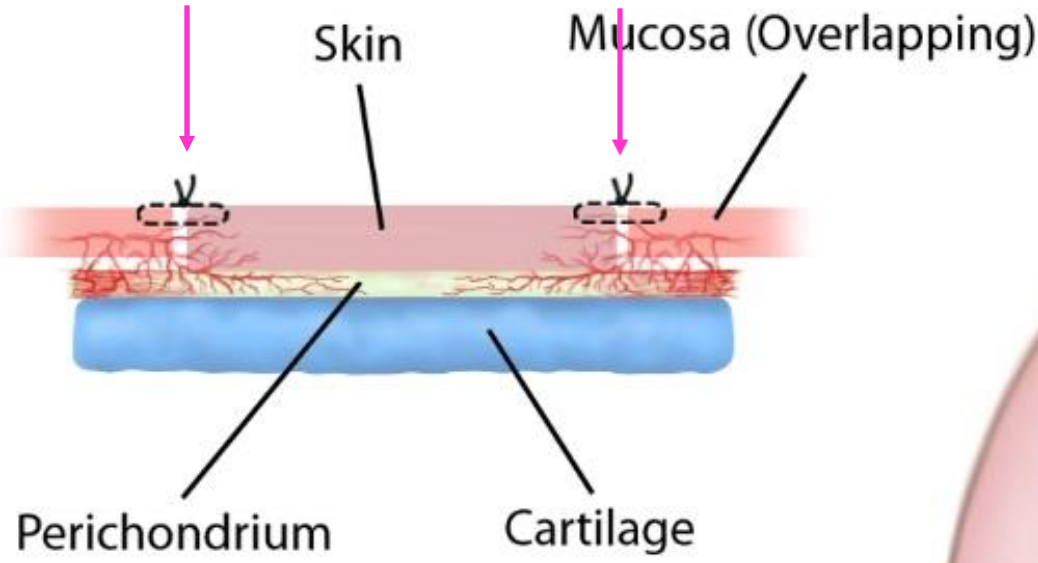








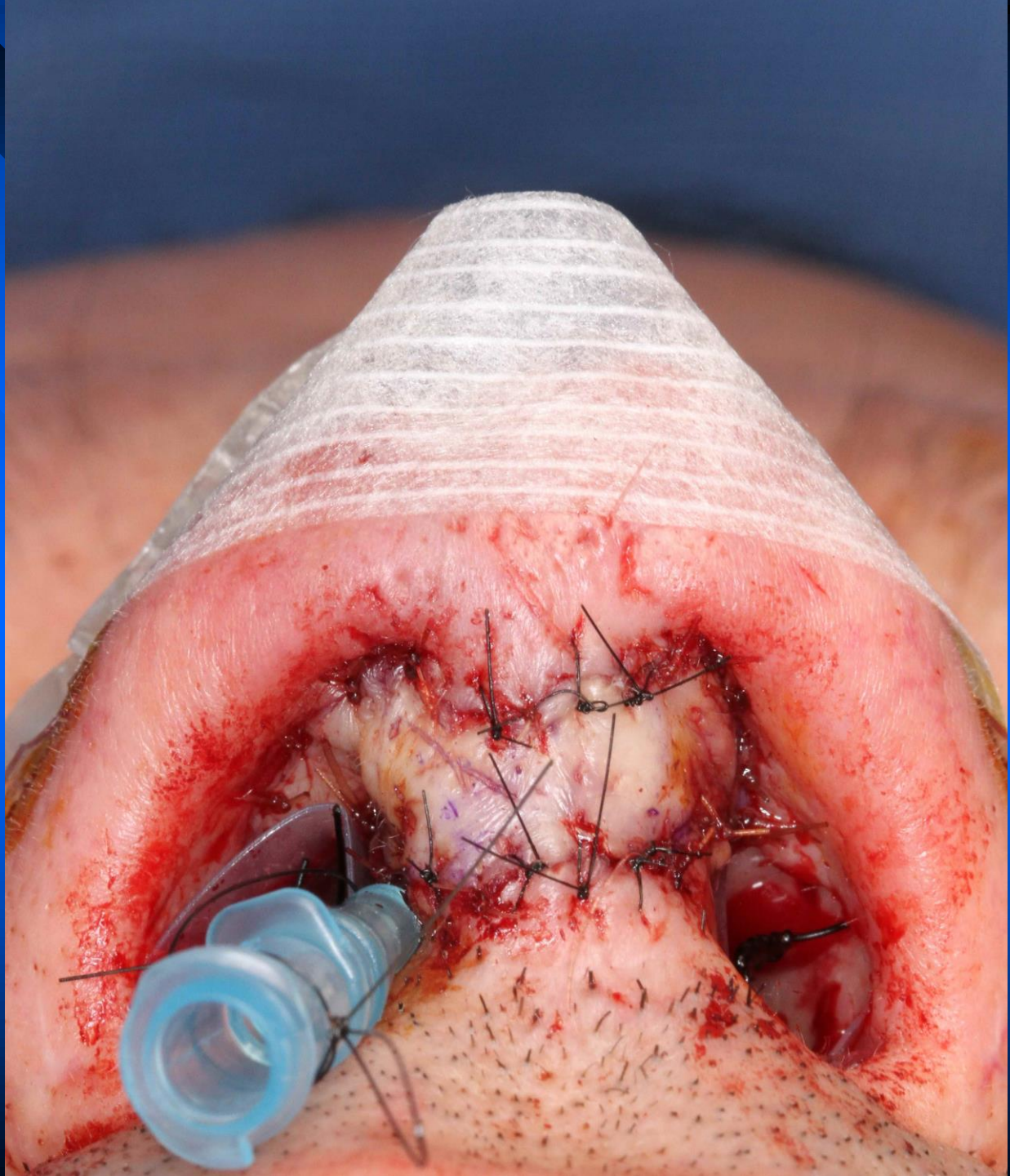


















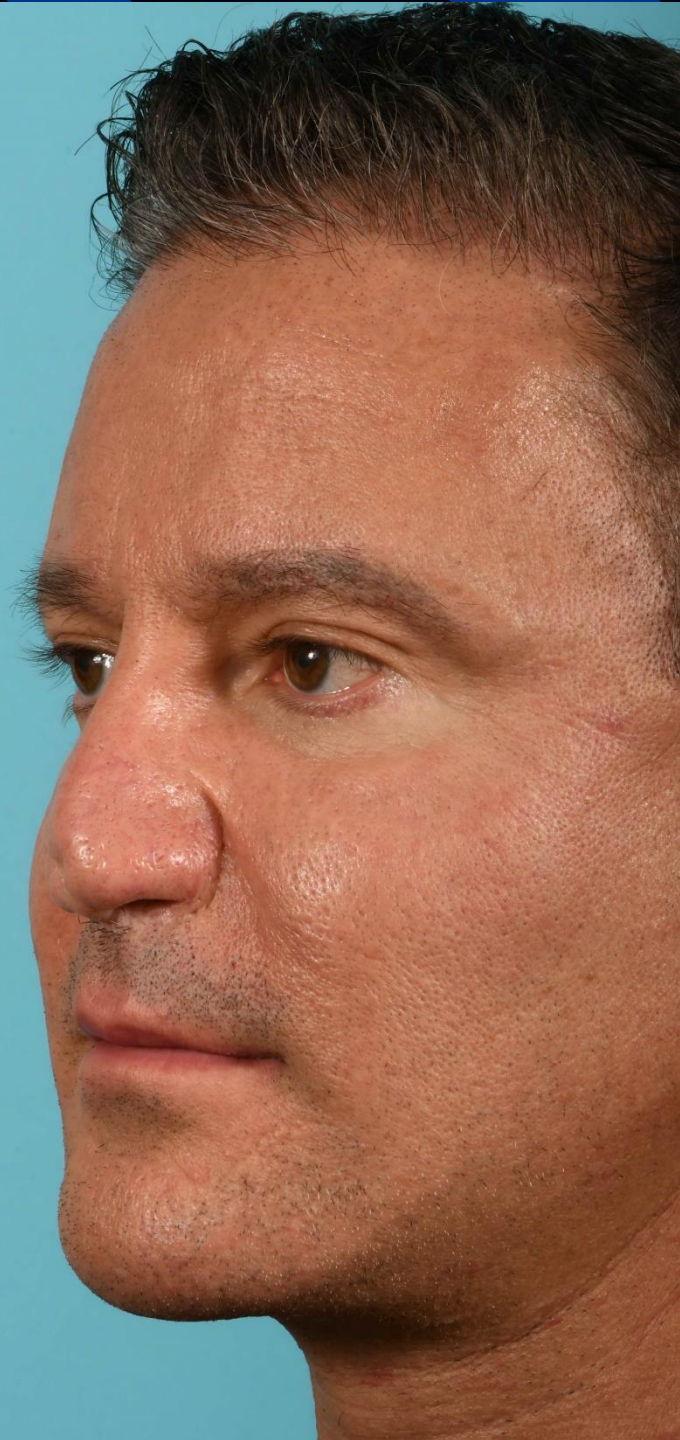


One year postoperative



































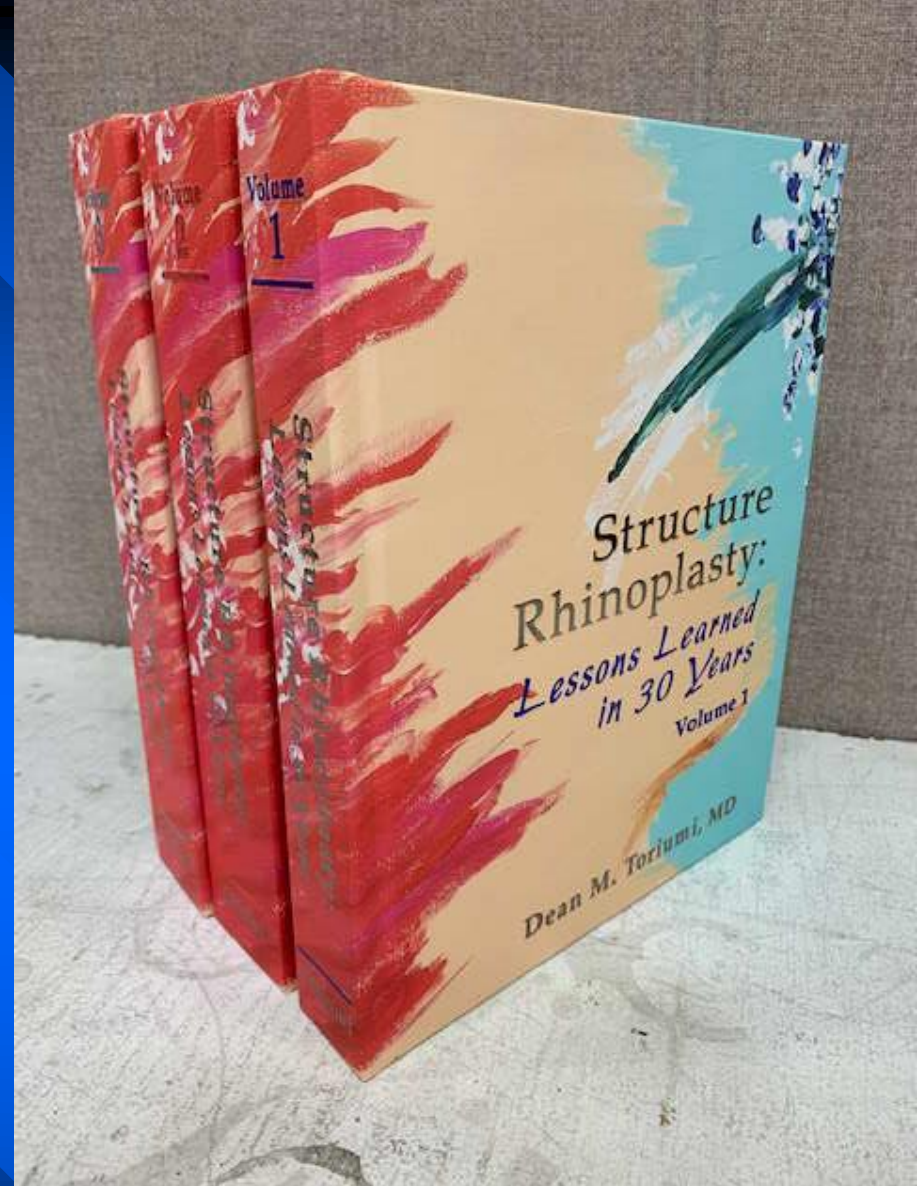








Structure  
Rhinoplasty:  
Lessons Learned  
in 30 Years



[Toriumirhinoplastybook.com](http://Toriumirhinoplastybook.com)













