

A Silent threat to Surgical wounds



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Junior Resident

Department of Microbiology

Case

A 60-year-old Army Officer reported to the Surgical Gastroenterology OPD with complaints of

- Swelling over the right side of the abdomen since 6 months

Past History

- H/o Exploratory Laparotomy for appendicitis and perforated intestines in November 2021(1.5 years back)
- No comorbidities

General Examination

The patient was conscious, cooperative and well-oriented to time, place and person

Pulse rate: 88/min

BP: 120/80 mmHg

O/E:

- 10x15 cm swelling was present in the anterior abdominal wall, gradually progressive in nature, aggravated on standing and relieved on lying down
- Cough impulse seen
- Laparotomy scar present



- He was admitted to the Surgical Gastroenterology ward, Dr D Y Patil Medical College, Hospital and Research Centre for further investigations and treatment

Bilateral transversus abdominis release with meshplasty was done.

POD 0,

The patient was intubated and shifted to CCM ICU

POD2,

- Patient had 2 fever spikes (103-104°F)
- Blood, sputum, stool and urine were sent for Culture and Sensitivity testing
- *Pseudomonas aeruginosa* was isolated from aerobic blood culture bottle
- Sputum Culture report- Saliva
- Stool culture report- no pathogenic organism isolated
- Urine culture report- No growth

- S.procalcitonin was sent along with other routine investigations
- TLC count: 6700/ μ L WBC count: Neutrophils-**94%**
- S.Procalcitonin- 1.48ng/mL
- Inj.Piptaz was stopped and shifted to Inj. Meropenem 1gm IV TDS and T.Linid BD

POD5,

Repeat investigations came to be normal and the patient was shifted to the ward and discharged on POD 10

After 3 months, the patient came back to the Surgical Gastroenterology OPD with complaints of:

- Discharge from right side of the wound and Pain in the abdomen since 3 months
- Loss of weight and loss of appetite

The patient was admitted under Surgical Gastroenterology for further investigations and treatment

O/E:

- He was afebrile, conscious, oriented
- 2 sites of discharges were seen along the right side of the suture line

- USG-guided aspiration was done by Interventional Radiologist and the fluid was sent for microbiological investigations
- In view of previous serial Negative cultures, the Sample was subjected to all possible etiologies with our capacity
- Aerobic and Anaerobic Bacterial culture still came as **NO GROWTH**
- Fungal Culture: **NO GROWTH.**
- **ZN stain:** No acid-fast bacilli were seen
- **CBNAAT** – *M. tuberculosis* not detected
- Sample was also subjected to solid and liquid culture for MTB/NTM bacteria

Investigations in Mycobacteriology

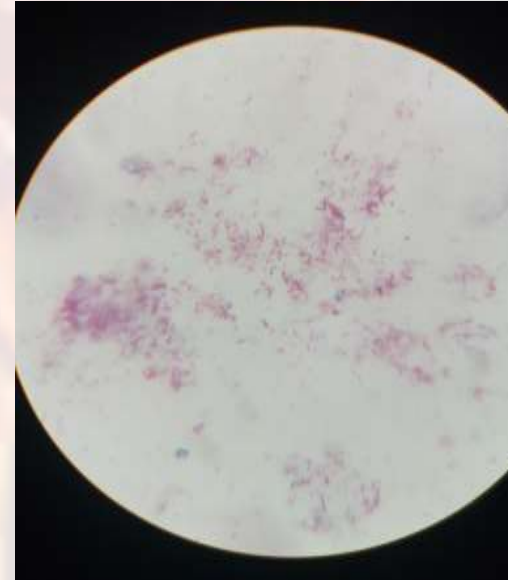
- **Solid culture** on Lowenstein-Jensen media:

smooth, moist, white colonies grew within 4 days



- **Culture smear microscopy:**

Acid-fast bacilli seen



- **Liquid culture on MB-BACT: Positive**

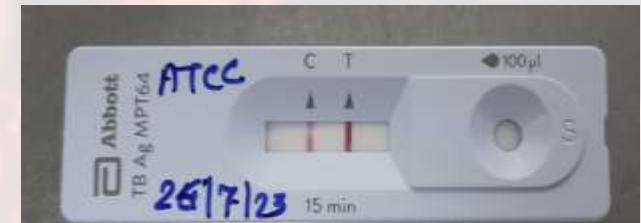


- **Smear microscopy of liquid culture: Acid-fast bacilli seen**



- **MPT-64 Immunochromatography Test: Negative for *M. tuberculosis***

Control



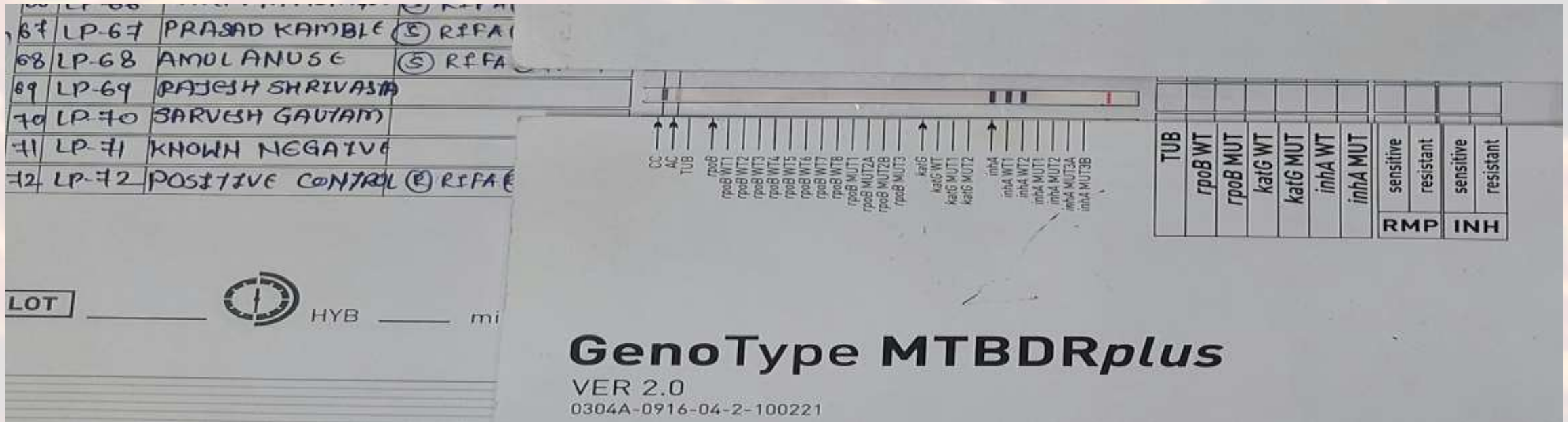
Test



- Acid-fast bacilli seen on smear preparation from culture bottle
- Smooth, mucoid colonies on BA after 2 days of incubation at 37°C
- Rapid growth on LJ medium (within 2 days) at 37°C
- Non-lactose fermenting colonies on MacConkey agar
- Growth on SDA with Chloramphenicol-3days of incubation at 37°C

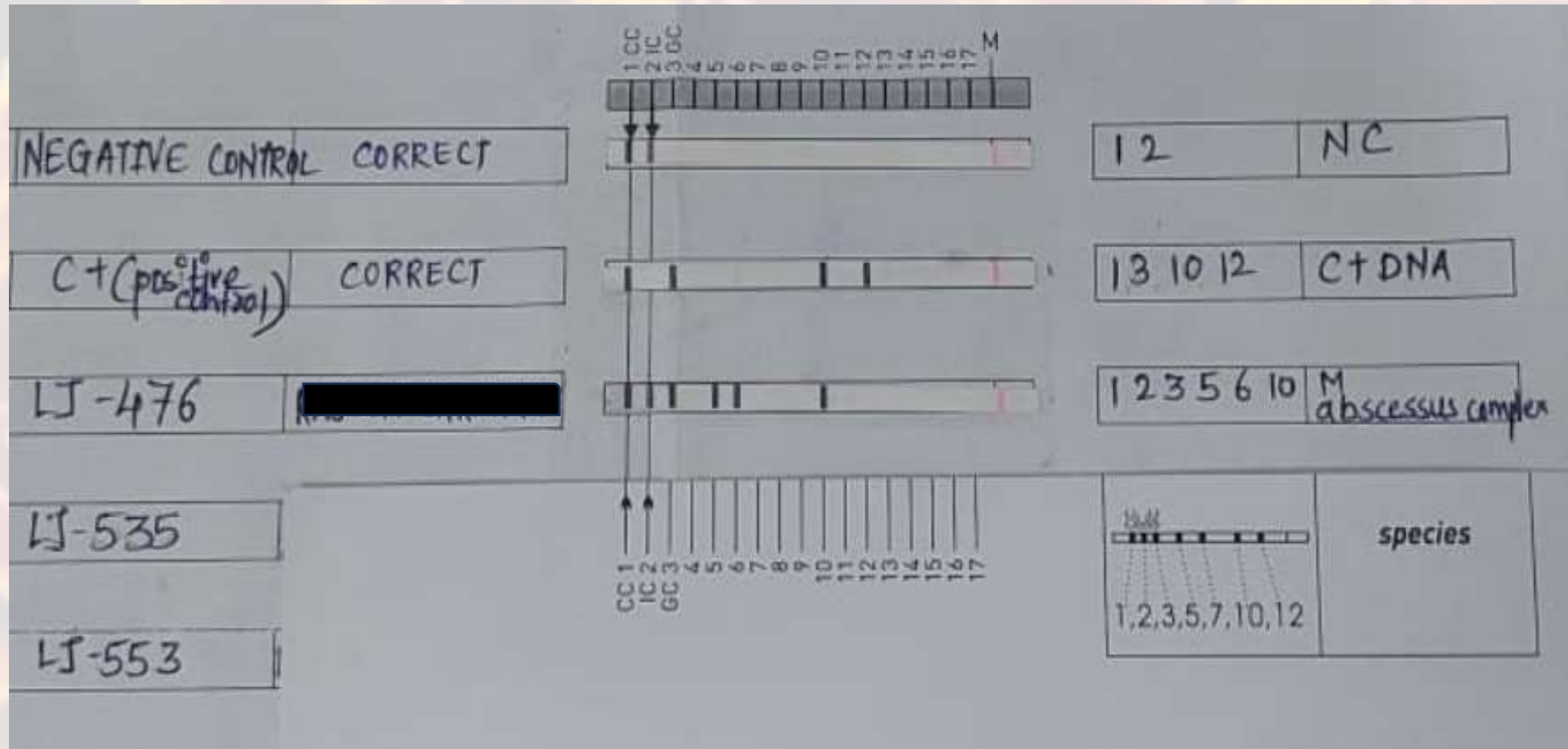
Line Probe Assay

- **GenoType MTBDRplus:**
 - MTB complex not detected



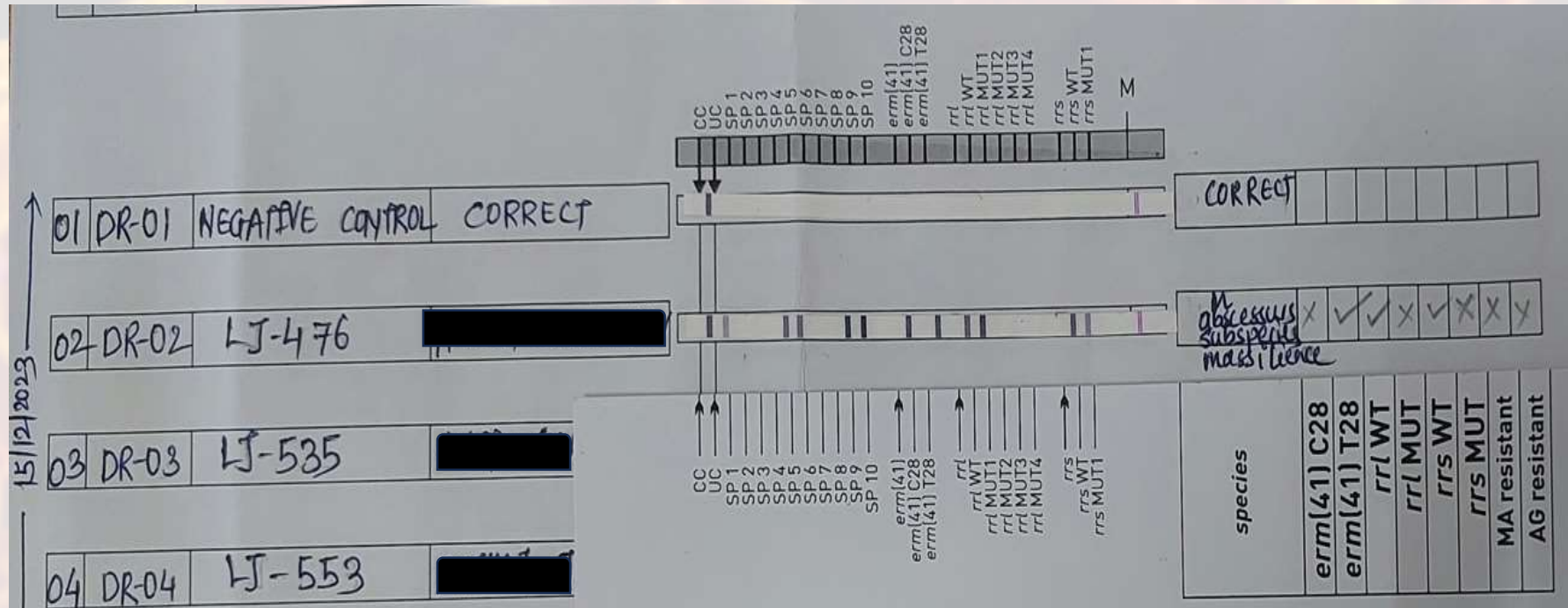
- **Geno Type Mycobacterium CM**

Mycobacterium abscessus subspecies massiliense identified



- **Geno Type Mycobacterium DR**

Mycobacterium abscessus subspecies massiliense identified



While these investigation were ongoing patient still had mild complaints and as he was told about the NTM infection , it was decided to go for source reduction/removal.

CT abdomen and pelvis

Hypodense intramuscular collection in the right lumbar, left lumbar, and left iliac region suggestive of inflammatory collection.

USG abdomen and pelvis

Floating mesh with collection on the right side was seen

- Explantation of infected abdominal mesh was done on 25/9/2023

• Liquid culture on MB-BACT: Positive



TGS GENOME ANALYSIS REPORT

Clinical Summary

Mycobacterium tuberculosis detected	Not Detected	Coverage	NA
Lineage	NA	% of reads	NA

Drug susceptibility Profile

Mycobacterium tuberculosis DST is **NA**.

Report summary :
Mycobacterium tuberculosis was **Not Detected**.
 DST for *Mycobacterium tuberculosis* is **NA**.
 The Q₂TB[®] analysis was performed for metagenomic detection of microbial species
 Co-infections identified are *Mycobacterium abscessus*.

Antibiogram for BF492856
NA

Mutations in BF492856
NA

Sample Collected on (SCT) : 18 Aug 2023 12:00
 Sample Received on (SRT) : 18 Aug 2023 20:59
 Report Released on (RRT) : 04 Sept 2023 12:16
 Sample Type : PURE CULTURE
 Labcode : 180801502/05001
 Barcode : BF492856


 Dr. Chaitali Nikam, PhD


 Dr. Kuldeep Singh (MD Path)

1

P. D. HINDUJA HOSPITAL & MEDICAL RESEARCH SOCIETY
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**DEPARTMENT OF LABORATORY MEDICINE
 MICRO TB SENSITIVITY**

ORDER NO : 42517279
 NAME : SHRIVASTAVA RAJESH
 DATE : 16/09/2023 LOCATION : OPD
 Samp. Coll Dt : 21/09/2023 04:31:48PM
 Sample Type :

EX NO. : 4441947
 AGE : 65 YEARS SEX : MALE
 REFERRED BY DR. : ONLINE KIOSK
 WorkSht.DITm. : 22/09/2023 10:20:42AM

ADM NO. :
 QR CODE

MIC FOR RAPIDLY GROWING MYCOBACTERIA

Test	Result
MIC FOR RAPIDLY GROWING MYCOBACTERIA SAMPLE	Isolate
Trimethoprim/Sulfamethoxazole	Resistant (8/152) mcg/ml
Ciprofloxacin	Intermediate (2.0) mcg/ml
Moxifloxacin	Intermediate (2.0) mcg/ml
Amikacin	Susceptible (4.0) mcg/ml
Doxycycline	Resistant (8.0) mcg/ml
Clarithromycin	Awaited mcg/ml
Linezolid	Susceptible (2.0) mcg/ml
Imipenem	Susceptible (4.0) mcg/ml
Minocycline	Resistant (8.0) mcg/ml
Tobramycin	Intermediate (4.0) mcg/ml


 DR. CAMILLA RODRIGUES
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Disclaimer : This Report is electronically Signed.

Report Printed On : 29-Sep-2023 16:27:11

CAMILLA SUNIL RODRIGUES

Entered By : RHN
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 Digitally signed by CAMILLA SUNIL RODRIGUES
 Date: 2023.09.29 16:27:36 +05:30
 Reason: DIAGNOSTIC REPORT
 Location: HINDUJA HOSPITAL - MAHIM

Page 1 of 3

Antibiotic
susceptibility
report for
M.abscessus

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Amikacin	Susceptible (4.0) mcg/ml
Doxycycline	Resistant (8.0) mcg/ml
Clarithromycin	Susceptible (0.25) mcg/ml
Linezolid	Susceptible (2.0) mcg/ml
Imipenem	Susceptible (4.0) mcg/ml
Minocycline	Resistant (8.0) mcg/ml
Tobramycin	Intermediate (4.0) mcg/ml

Treatment for *M.abscessus subsp.massiliense*

- Patient was started on Linezolid, Amikacin, and Clarithromycin for 6 months
- Clarithromycin was replaced with Azithromycin due to intolerance
- Linezolid dosage was changed to once daily after 3 months
- Patient has no discharge, improved his body weight.

Discussion

- *Mycobacterium abscessus* is a difficult-to-treat Non-tubercular mycobacteria(NTM)
- *Mycobacterium abscessus* includes 3 subspecies:
 1. *M.abscessus subsp.abscessus*
 2. *M.abscessus subsp.bolletii*
 3. *M.abscessus subsp.massiliense*
- They differ with respect to specific **erm(41)gene** responsible for intrinsic clarithromycin susceptibility
- Clarithromycin is considered the cornerstone of antimicrobial chemotherapy for *M.abscessus* infections

Discussion

- *M. abscessus subsp. massiliense* harbors a **truncated** erm(41) gene which makes it non-functional, hence remaining intrinsically macrolide-susceptible
- Rare exceptions with a full-length erm gene have been noted and mutational resistance to macrolides can occur after therapy
- Other subspecies harbor a **complete** erm(41) gene, which makes the gene almost always functional, conferring macrolide resistance
- A strain that appears susceptible after 3 days of in-vitro incubation, may become clarithromycin-resistant if incubation is extended to 14 days

Discussion

- Differentiating *M. abscessus* subspecies is crucial for the effective treatment of surgical site infections (SSIs).
- While combination therapy is typically recommended, clarithromycin proves successful for *M. massiliense* (lacking inducible macrolide resistance) unlike *M. abscessus subsp. abscessus*.
- Our patient with *M. massiliense* underwent explantation of the mesh and debridement and clarithromycin (later Azithromycin), achieving a good outcome.
- Although the infection source remained elusive, strict infection control in the operation theatre prevented further SSIs.

Take home message

- Proper sterilization of medical equipment, and proper skin cleansing preoperatively are essential prerequisites to prevent infections caused by Non-tubercular mycobacteria.
- NTM should be included in the differential diagnosis of surgical site infections.
- Rapid and Accurate diagnosis always help in prompt and appropriate therapy.

Acknowledgments

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Thank You