

# GRAND ROUNDS

Srinithi Kannan and Pia Dihayco



# Our Team

Dr. Srinithi  
and  
Dr. Pia



Dr. Lee MD



Dr. Lopez MD

Dr. Finley MD

# PATIENT HISTORY

**NAME: Isaac Bowman**

- ❖ 58 year old male
- ❖ McDonald's Employee
- ❖ History of **Mild Polycystic Kidney Disease (PKD)** and **Kidney Stones**
- ❖ **Hypertension**
- ❖ 30 pack/year smoking history
- ❖ **30 mg** dose **Atenolol** daily for BP



*\*Note: Isaac enjoys eating **McDonald's** and lives a mainly sedentary lifestyle\**



**01**

# **DOCTOR VISIT #1**

General Cardiac Workup

**April 19th, 2018**

***Cardiologist: Dr. Lee***

# 10:15 AM, 4/19/18

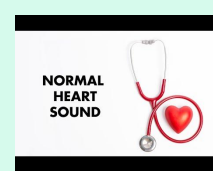
HR	92 bpm
BP	152/92 mmHg
RR	14 brpm
Height	5'10
Weight	159 lbs

**TACHYCARDIA +  
HIGH BLOOD PRESSURE**

- **Abdominal/Back pain**
- **Shortness of breath (SOB)**
- **Chest pain** during mild exercise
- Dizziness
- **Frequent fatigue**
- ...
- Dr. Lee concerned about **heart murmur** and **clicking** during physical

-----> **Cardiac Workup**

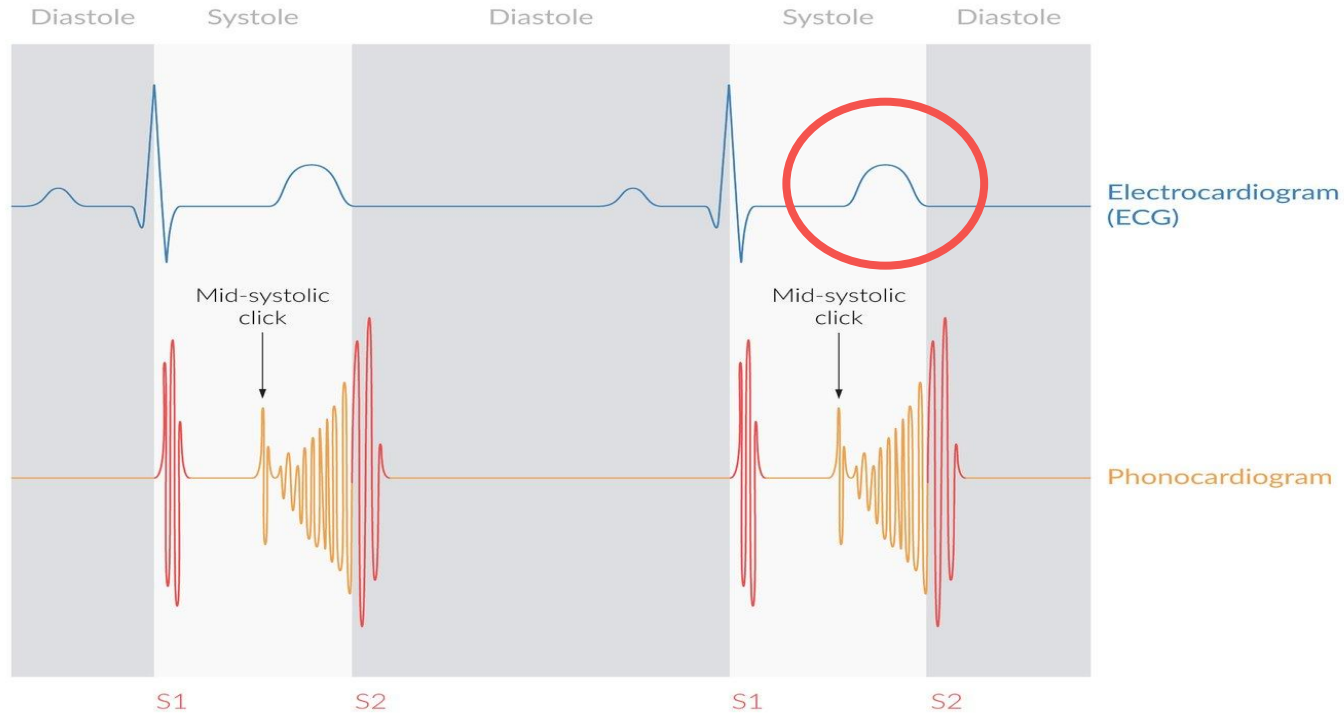
# Tests: EKG



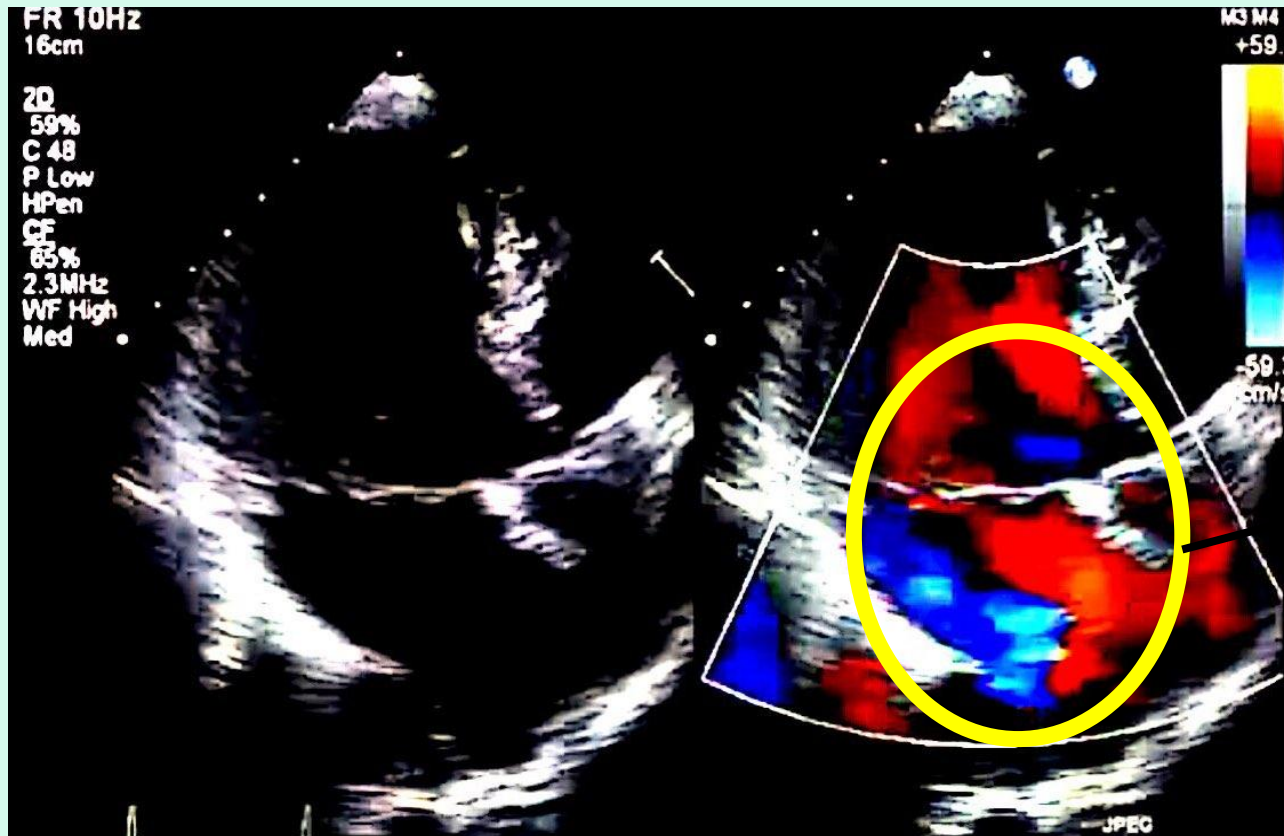
## Normal Electrocardiogram (EKG)



# Isaac's Electrocardiogram (EKG)- Sinus tachycardia and MVP



# Tests: Echocardiogram



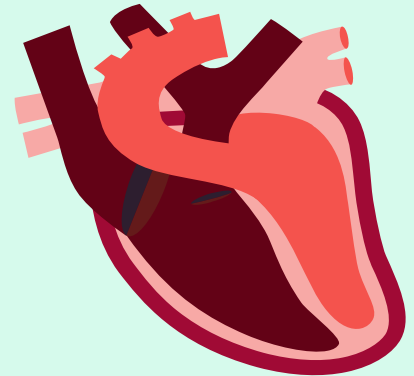
→ **Mitral Valve Prolapse-**  
lowers **cardiac**  
**efficiency**

→ **Improper closing of**  
valve causes **blood**  
to **flow back b/w**  
**chambers**

# Diagnosis

# Mitral Valve Prolapse

**\*Abdominal Pain attributed to PKD\***



# Symptoms of Mitral Valve Prolapse

- Shortness of breath
- Irregular heartbeat (Isaac- tachycardia)
- Dizziness
- Heart murmur



Previously on **30 mg Atenolol- daily dose increased to 40 mg**  
**\*Doctor's Note:\*** Referring patient to cardiac rehab



# 02

## DOCTOR VISIT #2

General Checkup  
**June 4th, 2020**

*General Practitioner: Dr. Finley*

**10:45 AM, 6/04/2020**

<b>HR</b>	91 bpm
<b>BP</b>	154/93 mmHg
<b>RR</b>	14 brpm
<b>Height</b>	5"10
<b>Weight</b>	157 lbs

- ❖ **Chief Complaint: Sharp back + abdominal pain-** feels like PKD
- ❖ Mild bout of **angina**
- ❖ **Fatigued**

...

Physical Exam:

- ❖ Poor BP management
- ❖ **Traces of blood** in urinalysis
- ❖ Doctor concerned by presence of **abdominal bruit**
- ❖ Patient mentions **feeling a pulse** around the belly button

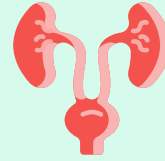
**\*Bruit:** Vascular murmur audible on stethoscope

# Differentials

01

## PKD Flare Up

- Back and side pain
- High blood pressure
- Blood in urine
- Kidney stones
- Fatigue



03

## Renal Colic

- Abdominal/ back pain
- Kidney stones
- Blood in urine
- Nausea
- Risk Factor: PKD

02

## Abdominal Aortic Aneurysm

- Abdominal/ back pain
- Pulsatile Mass
- Risk Factor: High BP

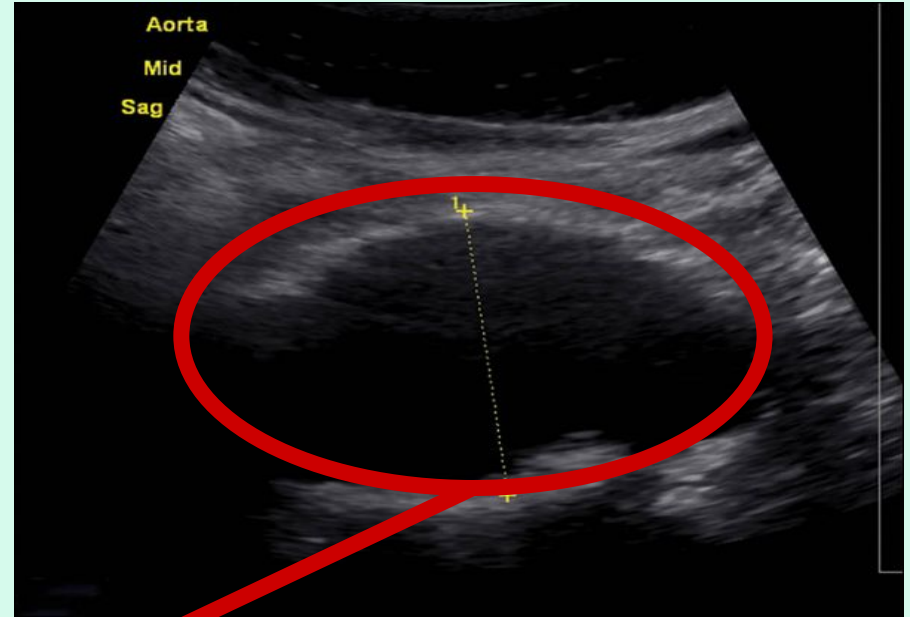


04

## Abdominal AV Fistula

- Pulsatile Mass
- Swelling
- Fatigue
- Heart Failure

# Tests- Abdominal Ultrasound



**5.3cm Fusiform Abdominal Aortic Aneurysm (AAA)  
Detected**

# Differentials ---> Diagnosis

01



## PKD Flare Up

- Back and side pain
- High blood pressure
- Blood in urine
- Kidney cysts
- Fatigue

Note: Blood in urine still attributed to PKD

02



## Abdominal Aortic Aneurysm (AAA)

- Abdominal/ back pain
- Pulsatile Mass
- Risk Factor: High BP, unhealthy lifestyle

03



## Renal Colic

- Abdominal/ back pain
- Kidney stones
- Blood in urine
- Nausea
- Risk Factor: PKD

04

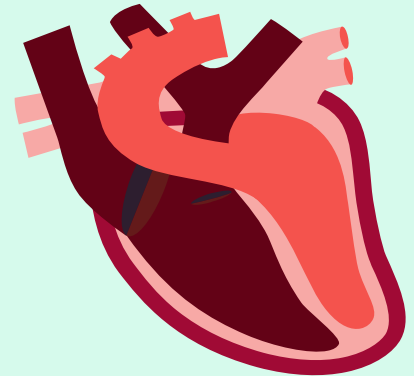


## Abdominal AV Fistula

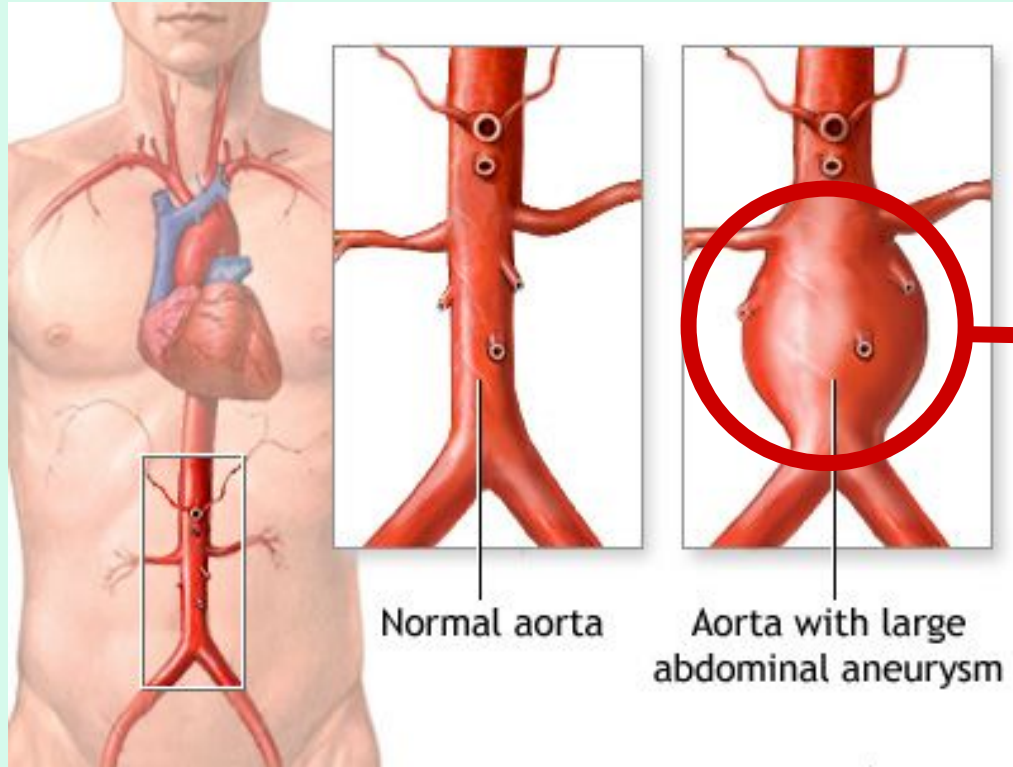
- Pulsatile Mass
- Swelling
- Fatigue
- Heart Failure

# Official Diagnosis

# Abdominal Aortic Aneurysm



**\*Infrarenal Fusiform Aneurysm of 5.3 cm**

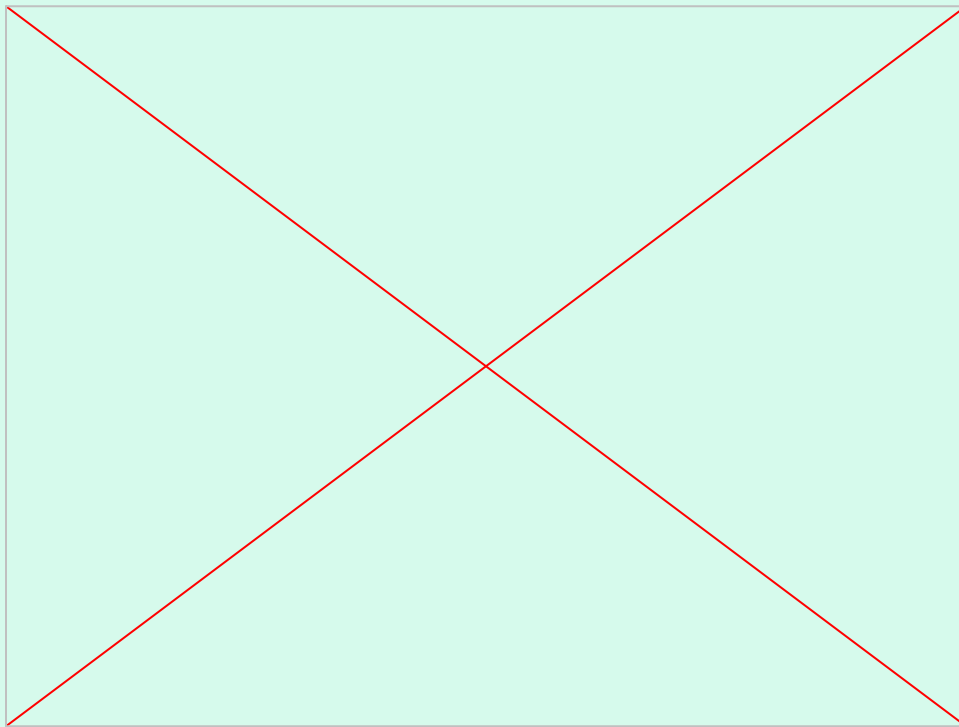


Normal aorta

Aorta with large abdominal aneurysm

**Enlarged aorta  
caused by  
weakened artery  
walls due to a rise  
in blood pressure**

# Model



# Treatment Plan Options

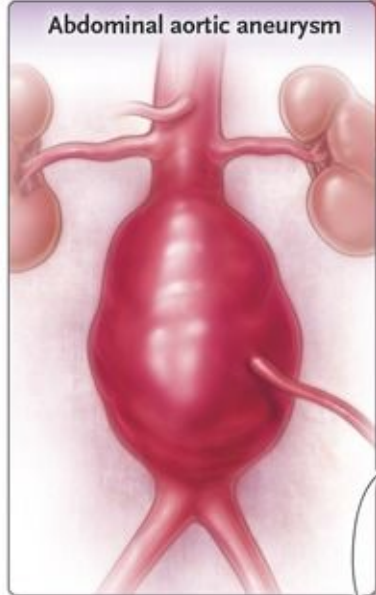
## Endovascular Repair (EVAR)

- Stent inserted to exclude aneurysm from circulation
- **Minimally Invasive**
- Shorter recovery time
- Suitable for:
  - **Non-ruptured aneurysm**
  - About 2 inches wide/more
  - Enough area of normal artery

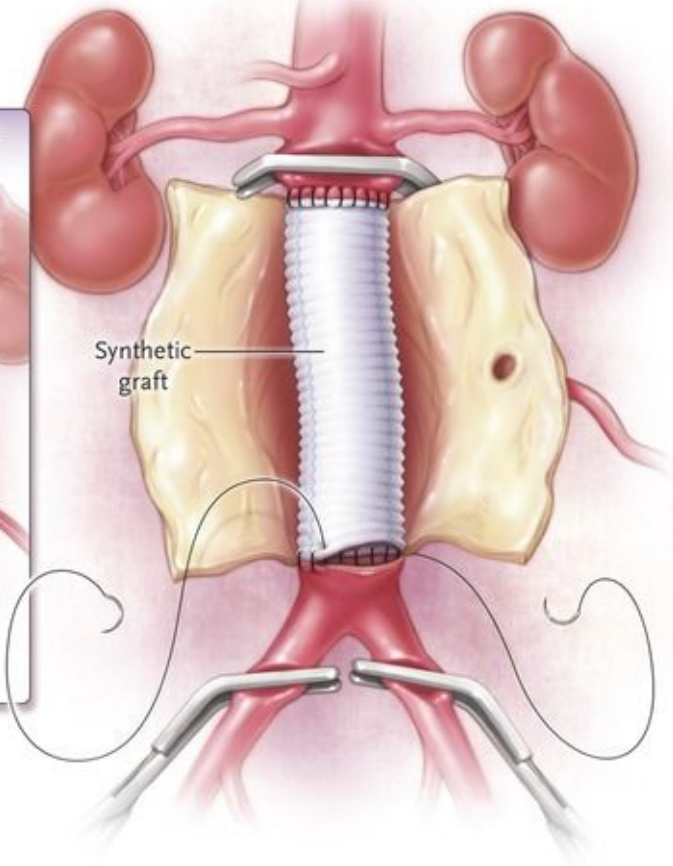
## Open Repair

- Replacement of entire aneurysm with metal graft
- **Open surgery**
- Higher mortality rate
- Longer recovery period
- **Emergency situations**

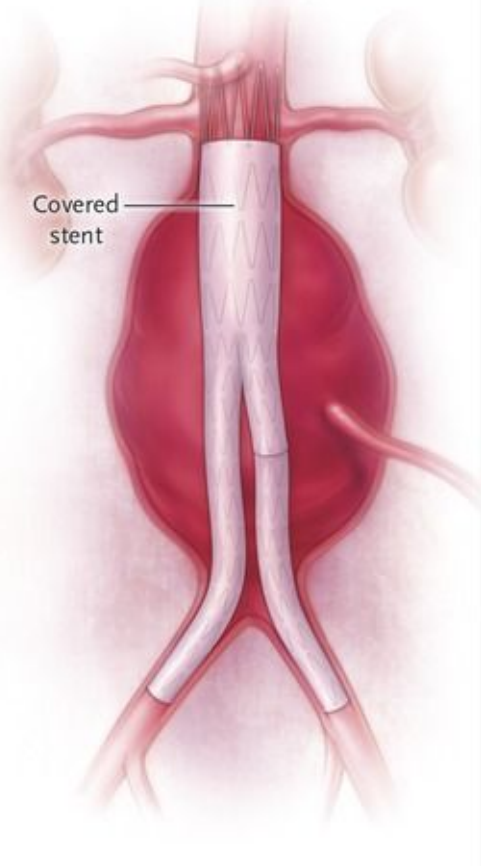




**A** Open repair



**B** Endovascular repair



# Treatment Schedule

## Elective EVAR

Scheduled for surgery in 3 days (**June 7th 2020**),

\*Patient was alerted to come to the ER upon any signs of rupture\*



**03**

# **DOCTOR VISIT #3**

**EMERGENCY**

**June 6th 2020**

***Vascular Surgeon: Dr. Lopez***

**ER- 11:00 AM, 6/06/2020**

<b>HR</b>	129 bpm
<b>BP</b>	82/61 mmHg
<b>RR</b>	22 brpm
<b>Height</b>	5"10
<b>Weight</b>	157 lbs

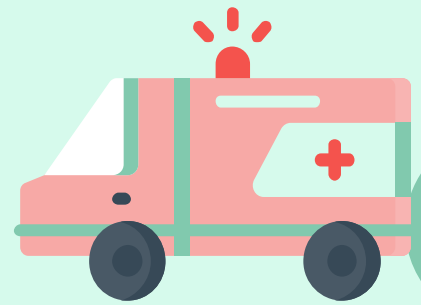
- ❖ Gnawing abdominal pain
- ❖ Vomiting
- ❖ Syncope
- ❖ Cold extremities
- ❖ Clammy skin

**Signs of Blood Loss**

**Unstable BP, ↑HR/ RR**



**= HEMODYNAMIC  
INSTABILITY**



# Diagnosis

# Ruptured AAA



Previously scheduled EVAR



Emergency Open Repair

**NOTE: \*DOOR to OR Time < 90 minutes\***



**Normal <3cm**



**Small 3-5cm**



**Large >5cm**



**Ruptured**

# Aneurysm Rupture Model



# Preoperative Emergency Plan

## 2) Permissive Hypotension

Stabilize patient for surgery w/ .9% normal saline and vasopressors by IV

## 3) Prophylactic Antibiotics

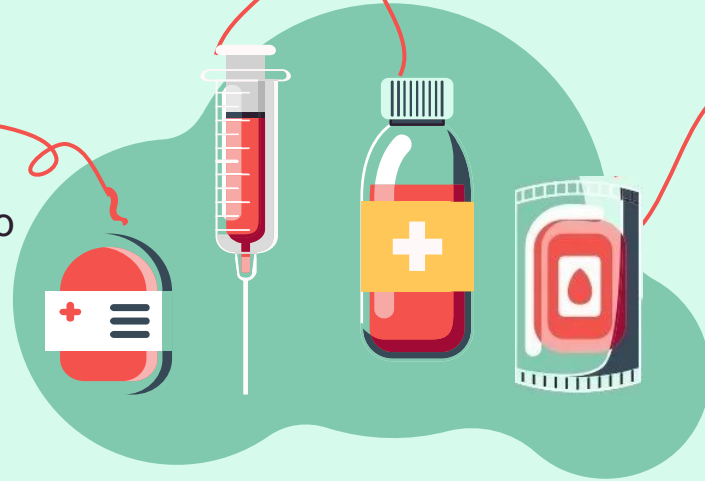
Prevent infection: 1st-generation cephalosporin by IV

## 1) Crossmatch

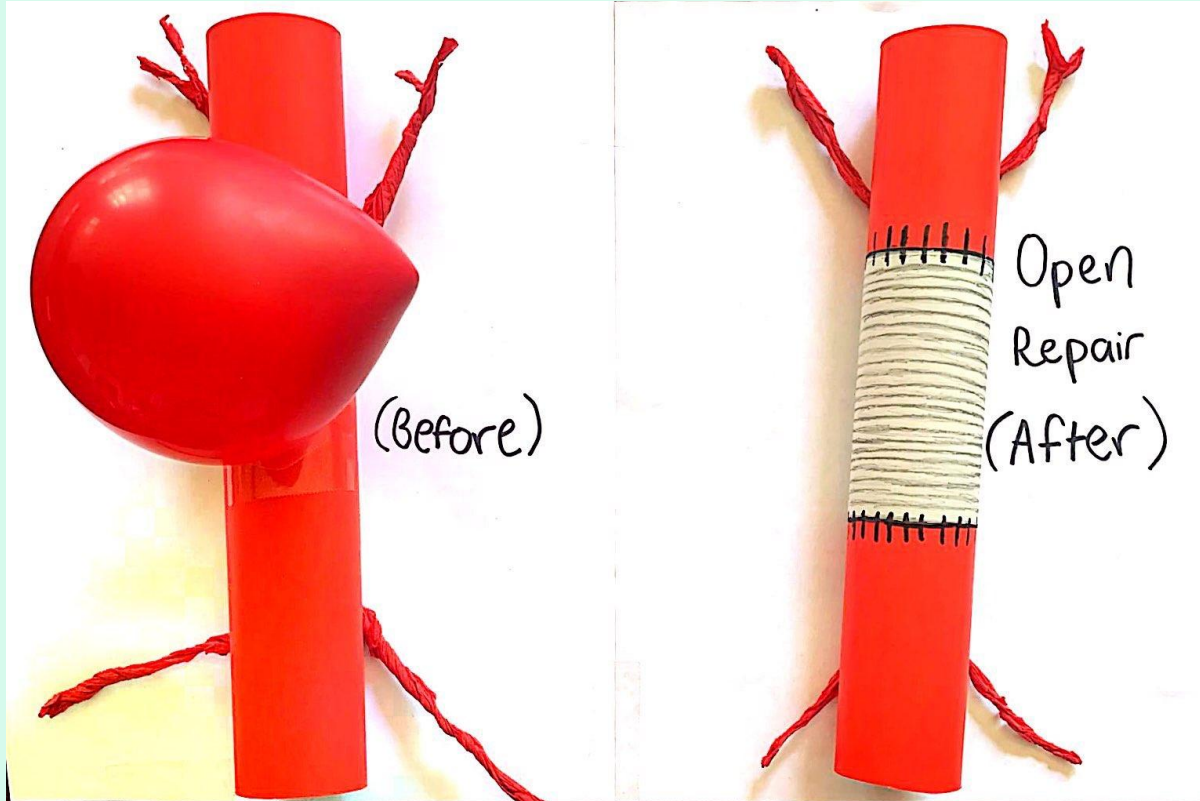
Patient's blood cross-matched to prevent transfusion reactions

## 4) Anesthesia

General endotracheal anesthesia by IV



# Surgery Procedure Model

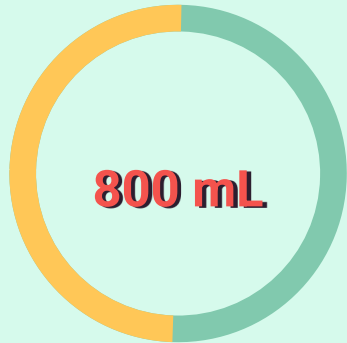
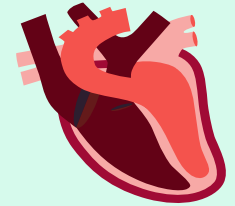




**OSR**  
**SURGERY SUCCESSFUL**

Duration: 11:45 AM- 1:55 PM

# Postoperative Monitoring



**Urine Output**



**Surgical Drain by  
48 hours**



- **Cephalosporin Antibiotic and fluid restoration(24 hours)**
- **Pain Relief: 100 mg Tramadol daily for 1 week**
- **No signs of infection**
- **Vitals Stable**
- **Discharged after 3 days**

**DISCHARGE:**

**10:00 AM 6/09/2020**



# 04

## DOCTOR VISIT #4

Follow up visit  
**June 15th 2020**  
*Cardiologist : Dr. Lee*



**9:30 AM, 6/15/20**

HR	92 bpm
BP	141/90 mmHg
RR	13 brpm
Height	5'10
Weight	156.5 lbs

**SLIGHTLY  
TACHYCARDIC**

**NOTE: Full annual checkups after next  
monthly**

- **Fatigue and soreness**
- ...
- Normal urinalysis
- Surgical wound looks healthy
- Healthy peripheral pulses and pulse quality
- Normal bowel movements, no signs of ischemia

**---> Suture Removal**

# CASE TIMELINE

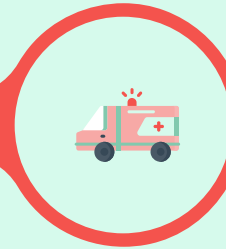
## Initial Diagnosis

Mitral Valve Prolapse, preexisting  
PKD  
**04/19/18**



## Emergency

Ruptured Aneurysm  
**06/06/20**



## Diagnosis

5.3 cm Abdominal Aortic  
Aneurysm  
**06/04/20**

## Followup

**06/15/20**



Did you know that

**70%**

Of cases go **undetected** until **rupture?**



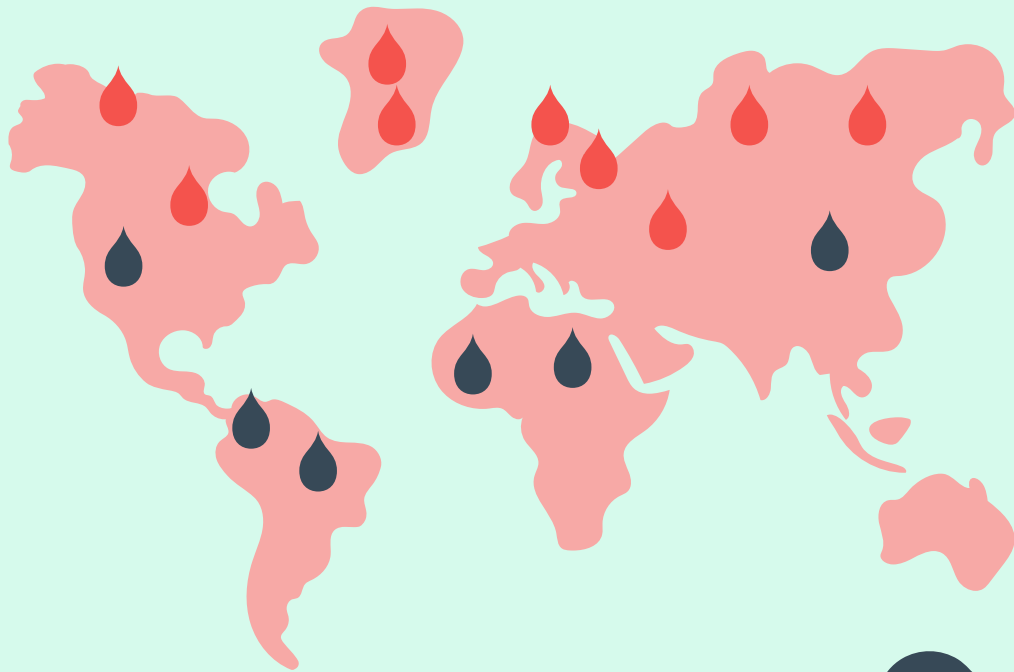


## GLOBAL IMPACT



**175,000**

Deaths each year  
from ruptured AAA



# Sources

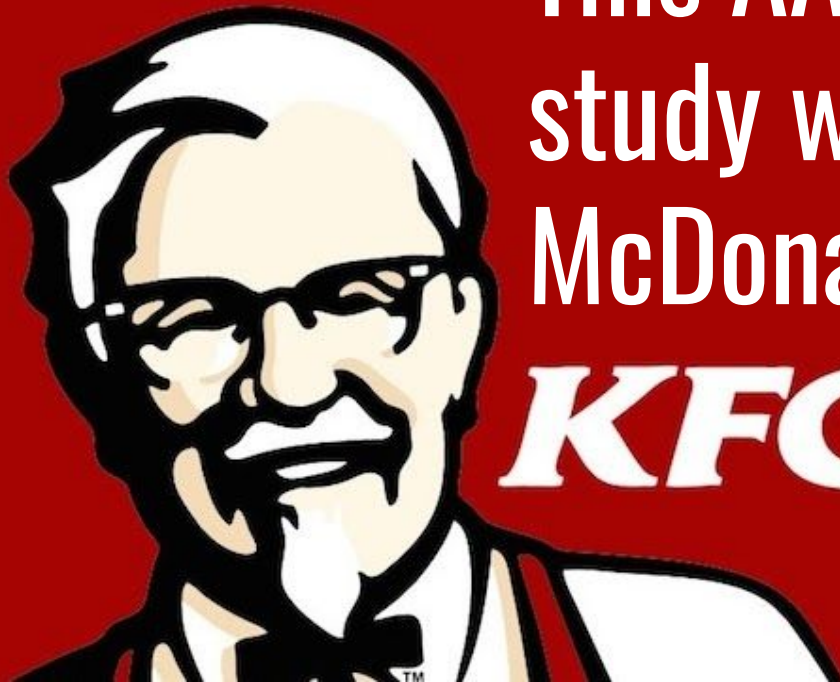


- ❖ 1. Medscape.com. [accessed 2021 May 4].  
<https://www.medscape.com/answers/1979501-30949/what-are-the-symptoms-of-a-rupture-d-abdominal-aortic-aneurysm-aaa>
- ❖ 2. When is surgery recommended for the treatment of abdominal aortic aneurysm? Institute for Quality and Efficiency in Health Care (IQWiG); 2017.
- ❖ 3. Polycystic kidney disease. Kidneyfund.org. [accessed 2021 May 4].  
<https://www.kidneyfund.org/kidney-disease/other-kidney-conditions/polycystic-kidney-disease.html>
- ❖ 4. Cardiology - BroadcastMed. Broadcastmed.com. [accessed 2021 May 4].  
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- ❖ 5. Abdominal aortic aneurysm. Nhs.uk. [accessed 2021 May 5].  
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- ❖ 6. Types of blood pressure medications. Heart.org. [accessed 2021 May 5].  
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# Sources Continued

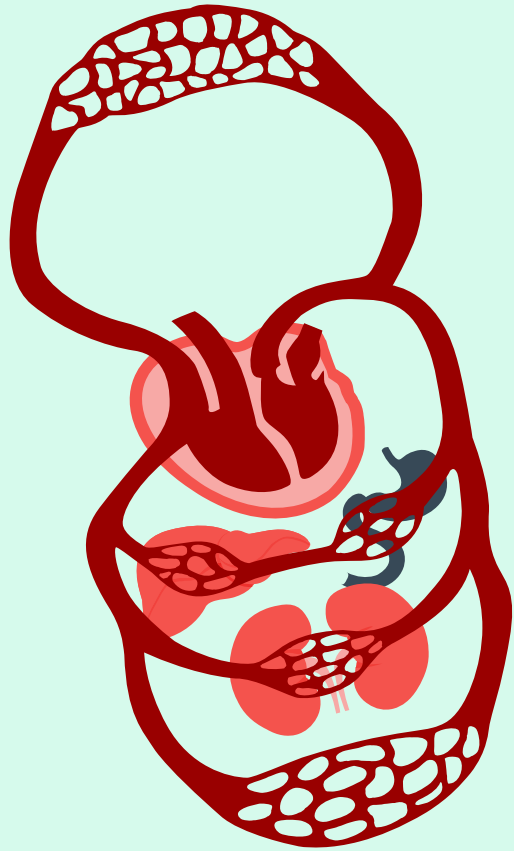


- ❖ 7. Tramadol. Rxlist.com. [accessed 2021 May 10].  
[https://www.rxlist.com/consumer\\_tramadol/drugs-condition.htm](https://www.rxlist.com/consumer_tramadol/drugs-condition.htm)
- ❖ 8. Echo-Web - Mitral Valve Prolapse. 2012 Jan 6 [accessed 2021 May 10].  
<https://www.youtube.com/watch?v=h6aJSuUTVb0>
- ❖ 9. Imm DN. Surgical Drains - Indications, Management and Removal. Patient.info. [accessed 2021 May 10]. <https://patient.info/doctor/surgical-drains-indications-management-and-removal>
- ❖ 8. Chiriano J, Killeen JD, Molkara AM, Bianchi C, Abou-Zamzam AM Jr. Rupture of an abdominal aortic aneurysm following nonaccidental blunt abdominal trauma. *Vascular*. 2010;18(5):303–306.
- ❖ 9. UpToDate. Uptodate.com. [accessed 2021 May 10].  
<https://www.uptodate.com/contents/surgical-and-endovascular-repair-of-ruptured-abdominal-aortic-aneurysm>
- ❖ 10. Researchgate.net. [accessed 2021 May 10].  
[https://www.researchgate.net/figure/ECG-on-admission-Sinus-tachycardia-at-103-bpm-no-evidence-of-ischemic-changes\\_fig1\\_304629787](https://www.researchgate.net/figure/ECG-on-admission-Sinus-tachycardia-at-103-bpm-no-evidence-of-ischemic-changes_fig1_304629787)



This AAA awareness case study was sponsored by McDonald's #1 competitor

**KFC**<sup>®</sup>



# THANK YOU!

Any Questions?