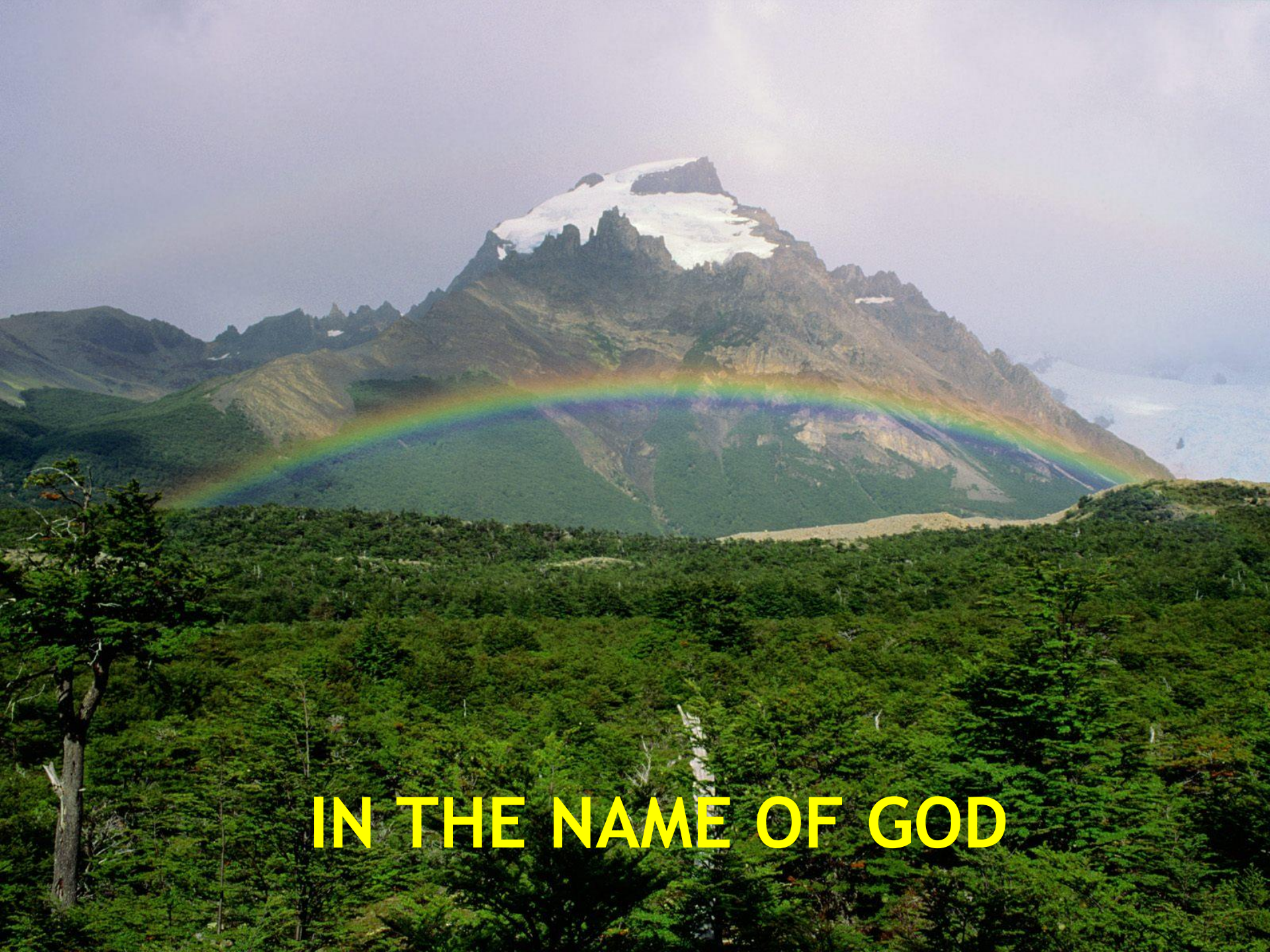
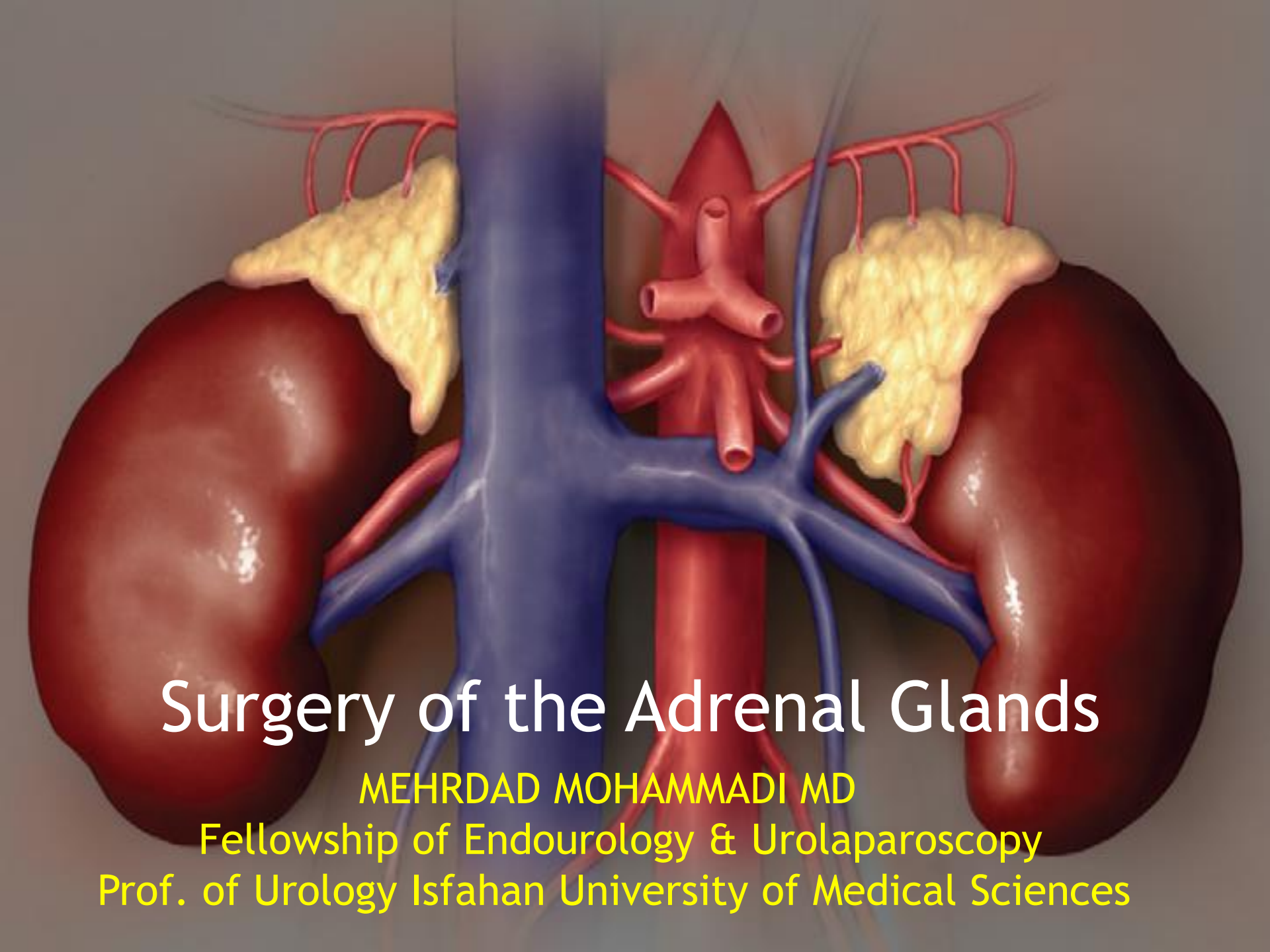
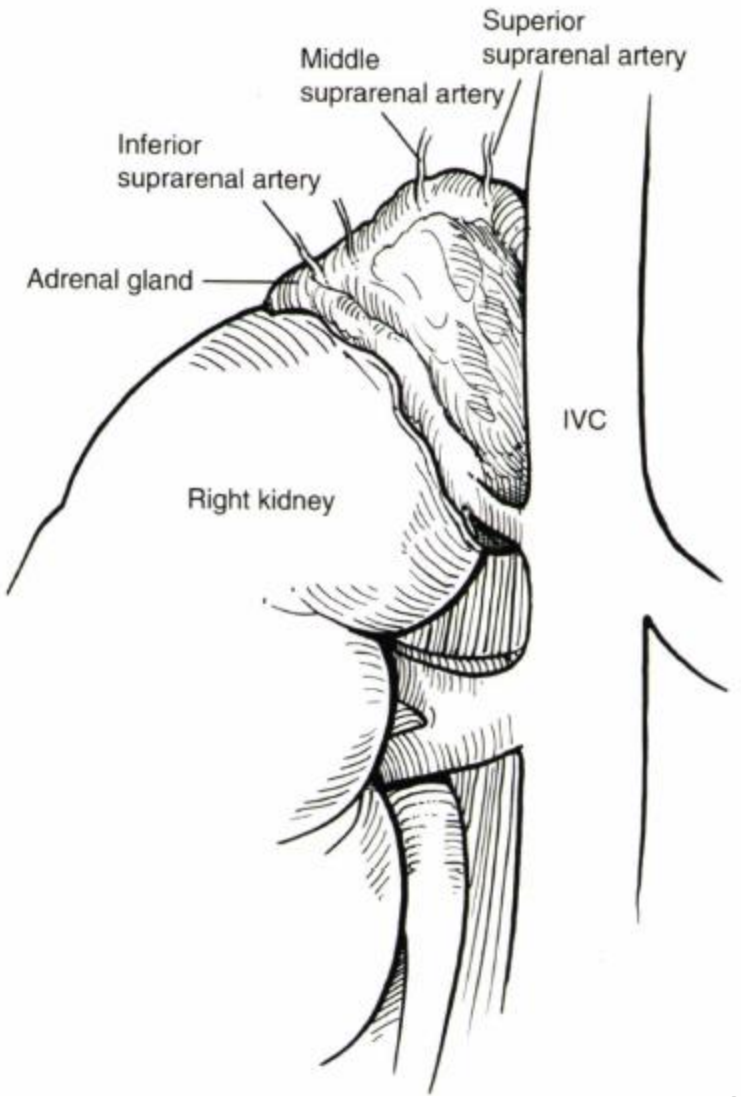
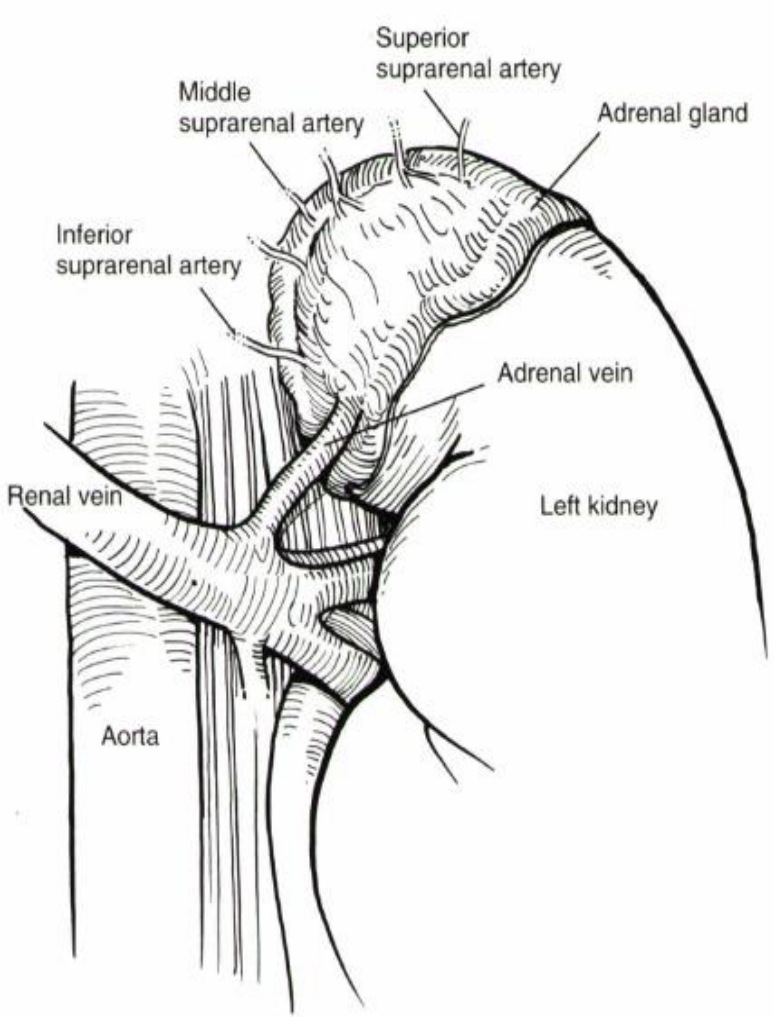

IN THE NAME OF GOD



Surgery of the Adrenal Glands

MEHRDAD MOHAMMADI MD
Fellowship of Endourology & Urolaparoscopy
Prof. of Urology Isfahan University of Medical Sciences

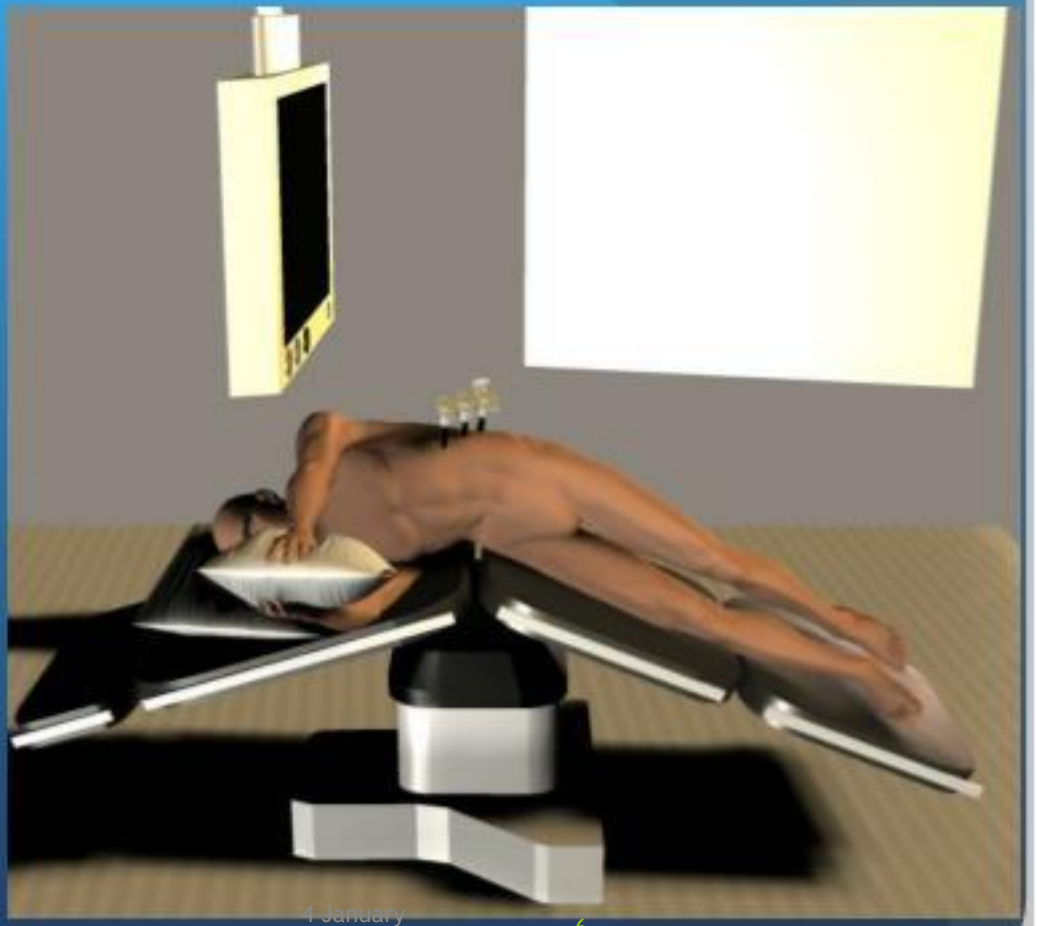

Superior
suprarenal artery
Middle
suprarenal artery
Inferior
suprarenal artery
Adrenal gland
IVC
Right kidney


Superior
suprarenal artery
Middle
suprarenal artery
Adrenal gland
Inferior
suprarenal artery
Adrenal vein
Renal vein
Left kidney
Aorta

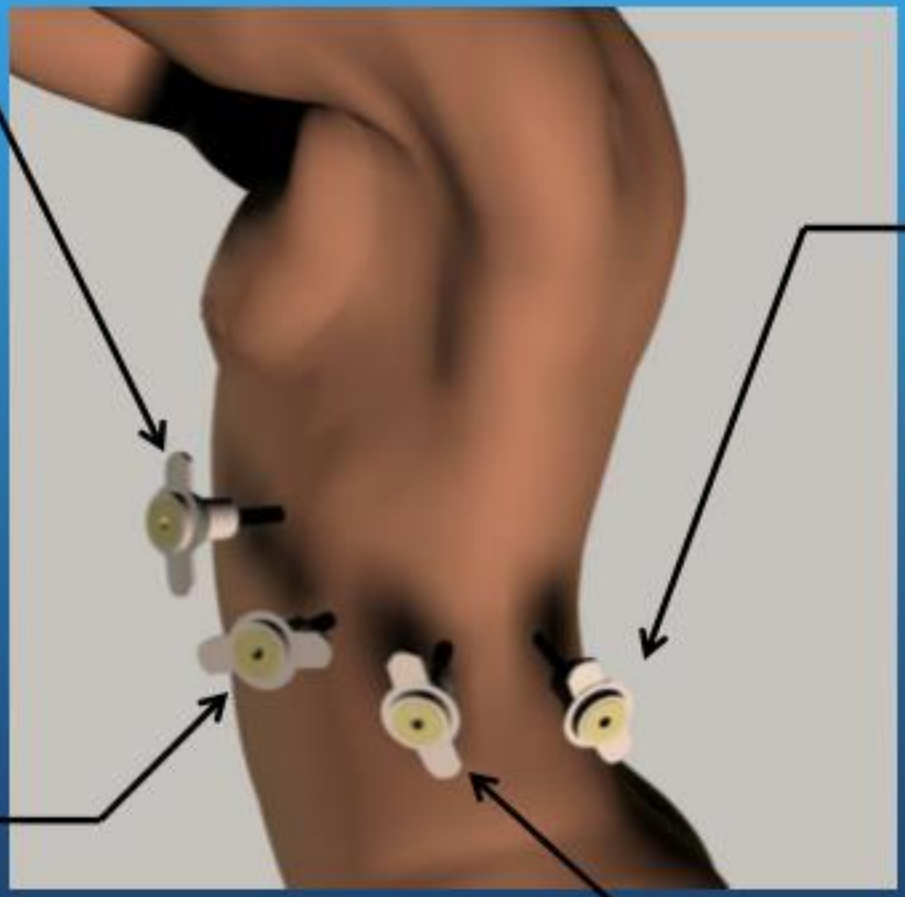
- Since the initial report of laparoscopic adrenalectomy in **1992**,this procedure has become the **gold standard** for the removal of most adrenal pathology.

Patient Positioning

- The patient is placed on the operating table slightly flexed at the waist in the right lateral decubitus position.
- A cushion can be used under the lumber fossa on the contralateral side to open the operative field and help with trocar placement.



Port Placement (continued)



10mm trocar parallel to costal margin

5mm trocar at the costovertebral angle

10mm trocar along midclavicular line

10mm trocar on the midaxillary line

- there has never been a prospective randomized study comparing open and laparoscopic adrenalectomy, yet in the published literature.

- At this point, the jury has weighed in so favorably on the side of laparoscopy that a randomized trial will likely never be done.

Advantages of the Laparoscopic Method

- Reduced wound morbidity
- Shorter hospital stay
- Easier/quicker return to normal activity
- Reduced postoperative pain
  - Due to absence of large surgical wounds
- Magnified view of operative field
- Less blood loss

Discussion now centers on questions such as

- Which laparoscopic approach is best?
- What about adrenal sparing with partial excision?
- How large is too large for a laparoscopic approach?
- Is this technique ever appropriate for malignant disease?

Adrenal carcinoma

there are many reports of successful laparoscopic removal of malignant adrenal tumors.

Just as in open dissection, care must be taken to minimize manipulation of the adrenal tumor, obtain wide margins, and avoid tumor spillage.

absolute contraindications

- Severe coagulopathy

  Plavix, Axebin ….

- Poor cardiopulmonary performance

relative contraindications

1. previous open surgery
2. tumor size
3. obesity
4. adrenal cortical carcinoma

Size

In the initial experience of many laparoscopists, a cutoff of 5 or 6 cm was chosen because of the increased risk of treating an adrenal cortical carcinoma.

Most authors would agree that 15 cm masses can be removed laparoscopically.

- Subsequently, ample empirical evidence has accumulated to suggest that **specimen size is not necessarily a contraindication** to laparoscopic adrenalectomy.

- MacGillivray and colleagues (2002) noted no difference in operative time, blood loss, complication rate, and hospital stay among 12 patients with large tumors (mean, 8.2 cm; range, 6 to 12 cm)and 36 patients with small tumors (mean, 2.5 cm; range, 0.4 to 5.6 cm).

- Operative time, blood loss, hospital stay, narcotic use, and complication rate were lower with laparoscopic adrenalectomy than with traditional open adrenalectomy for large tumors.

- Although a higher morbidity could be expected with larger tumors, *morbidity was still less than with open surgery*.

infiltrative tumors

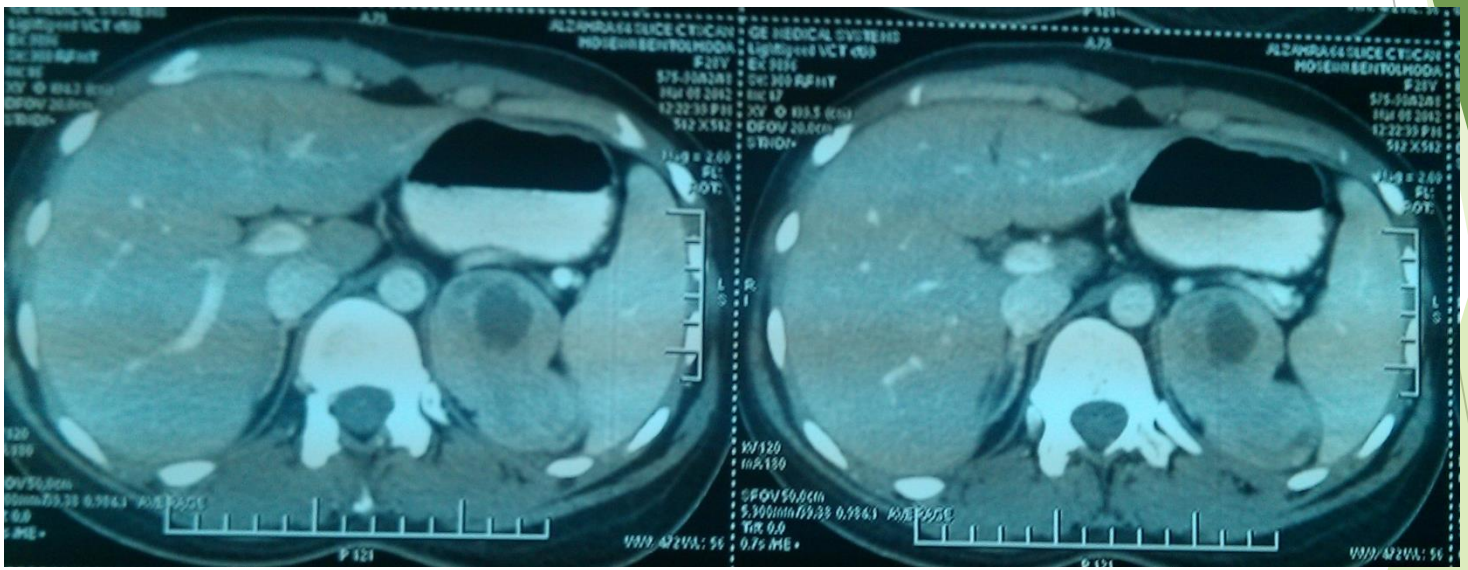
Conversion to open surgery is most often due to infiltrative adrenal cortical carcinoma. In the largest series, conversion occurred electively after initial laparoscopic exploration and not because of hemorrhage or other emergent causes.

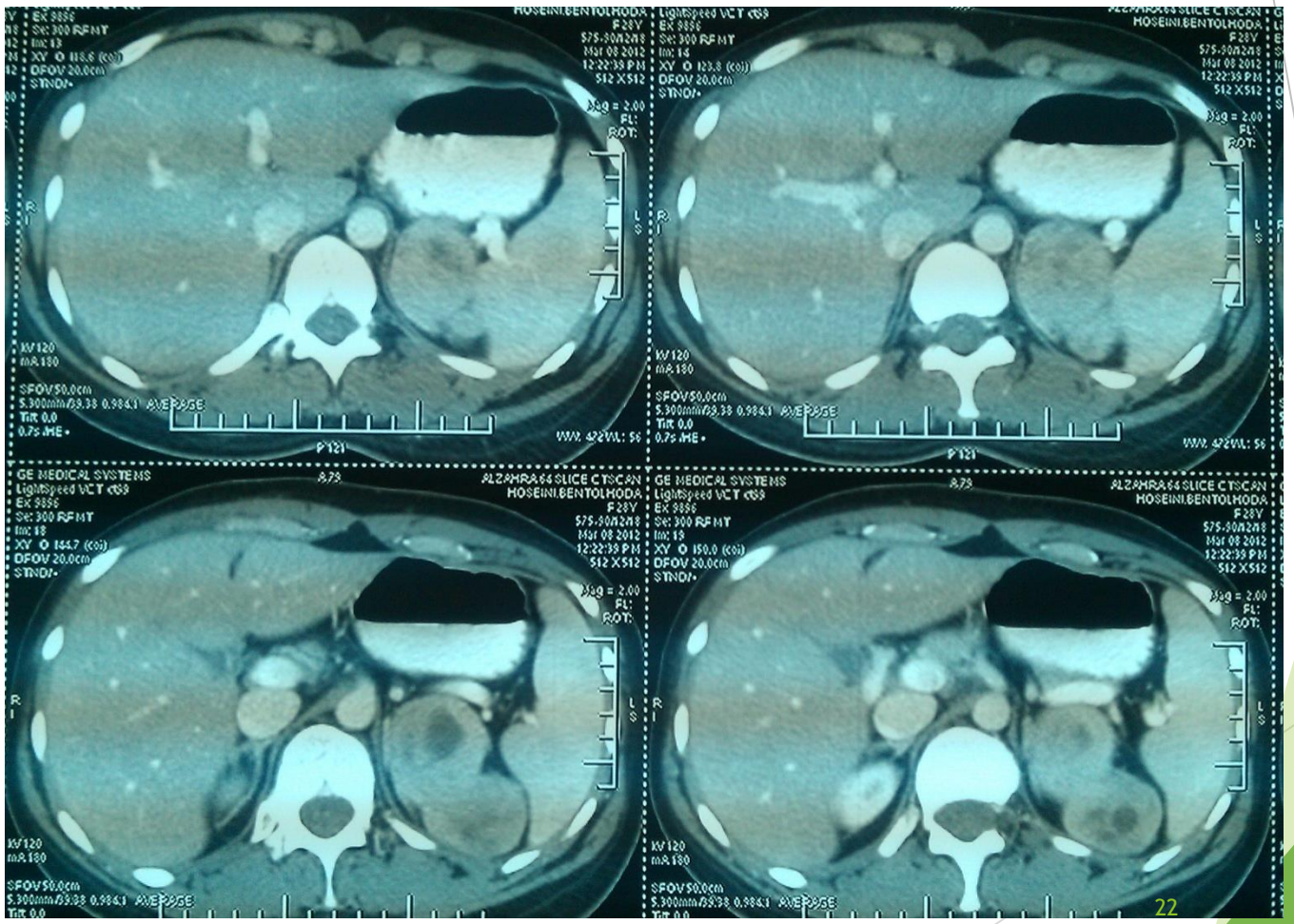
MacGillivray and colleagues (1996) concluded that preoperative computed tomographic scanning can identify those infiltrative tumors that are likely to be invasive carcinoma.

current indications for open adrenalectomy

1)adrenal cortical carcinoma with radiographic evidence of extra-adrenal tumor invasion of adjacent organs may benefit from maximal surgical exposure.

2)the extension of adrenal vein tumor thrombus into the inferior vena cava necessitates a more invasive approach.

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ALZAHRA 64 SLICE CTSCAN
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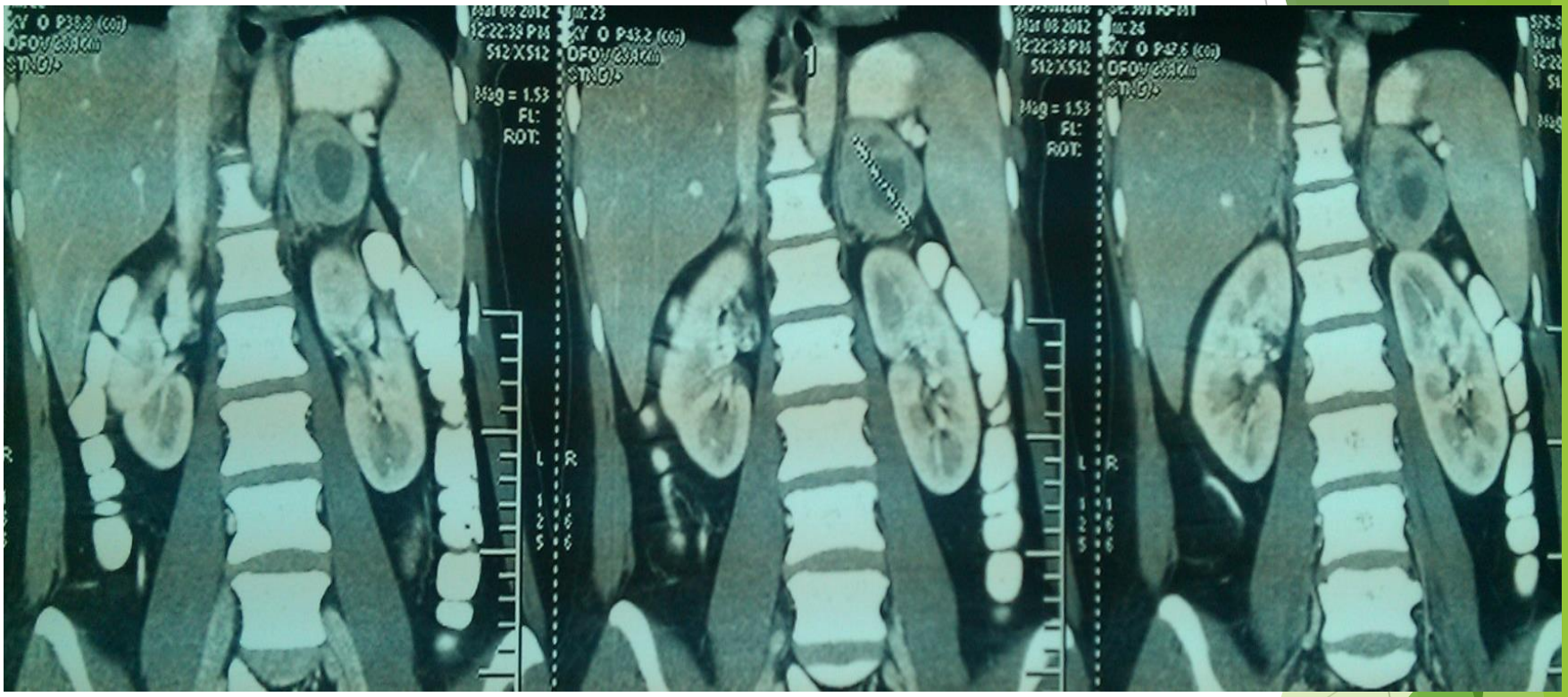
mA 180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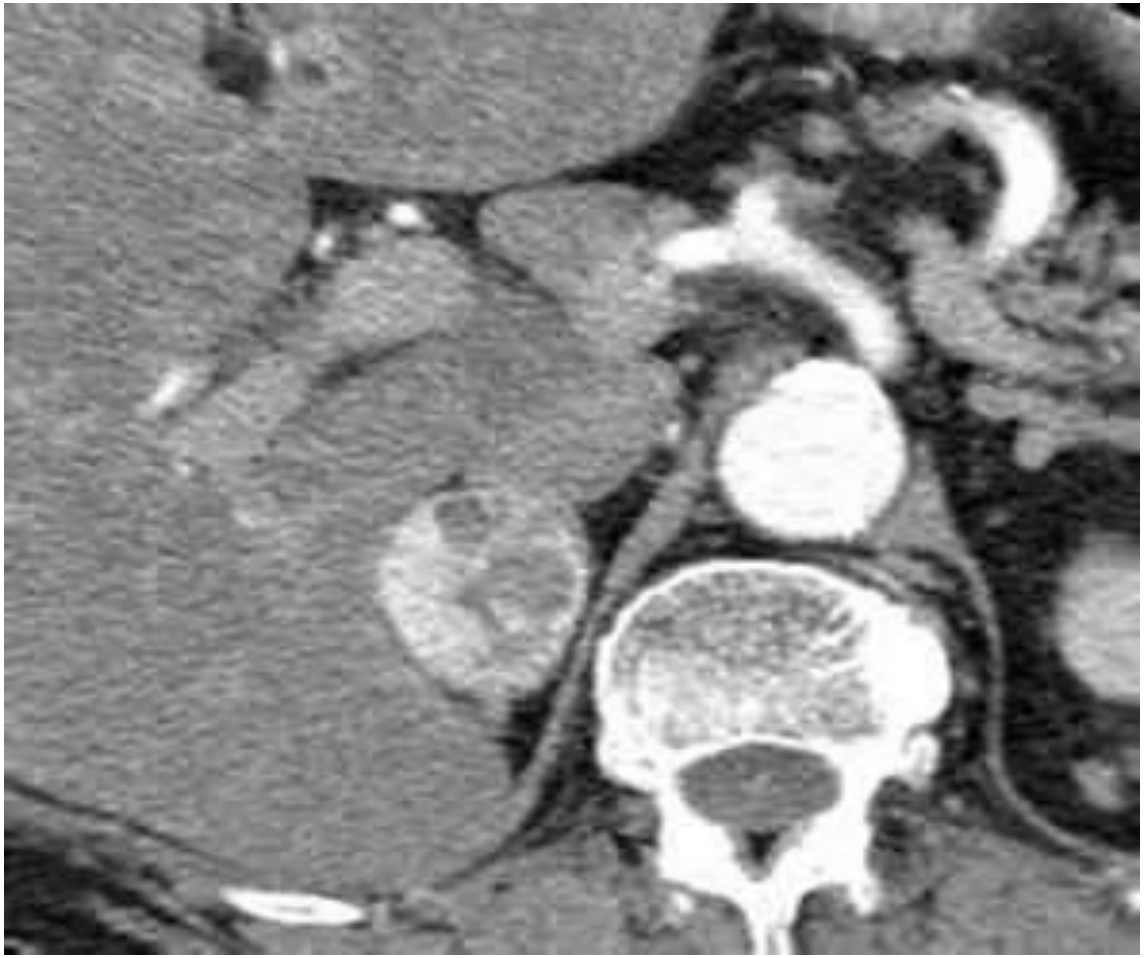

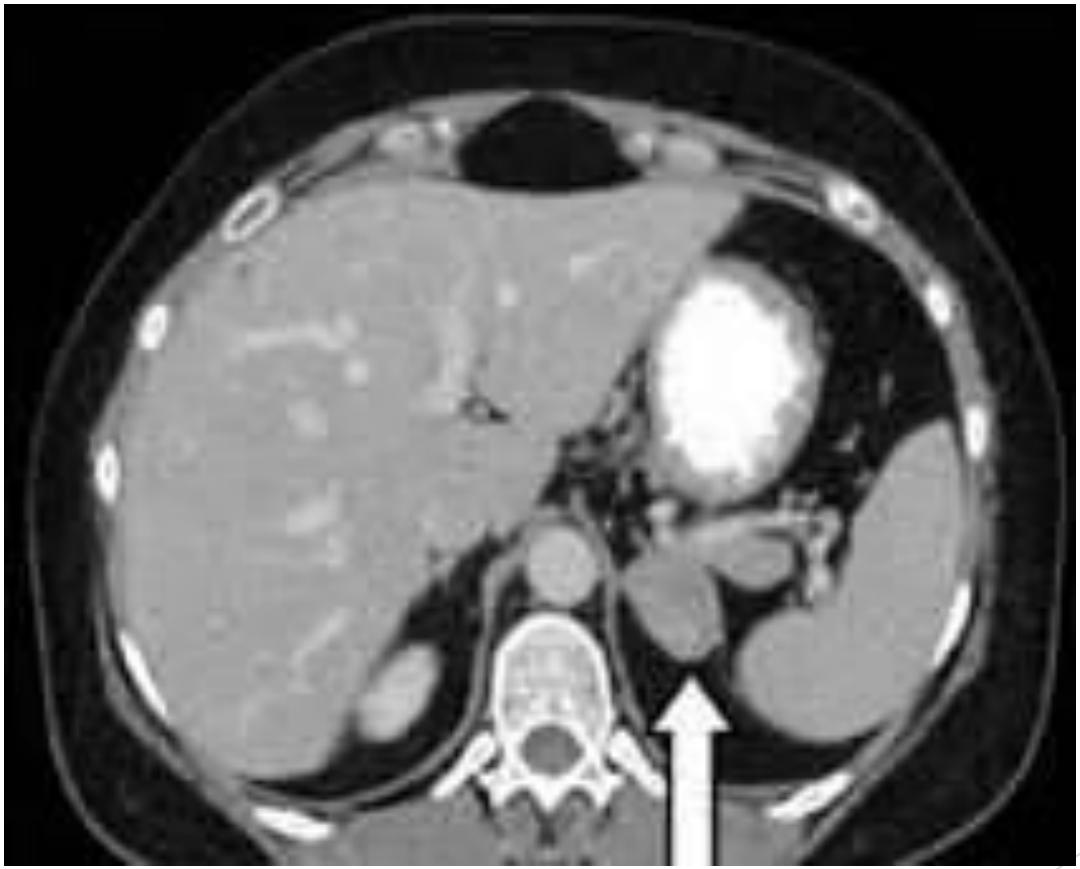

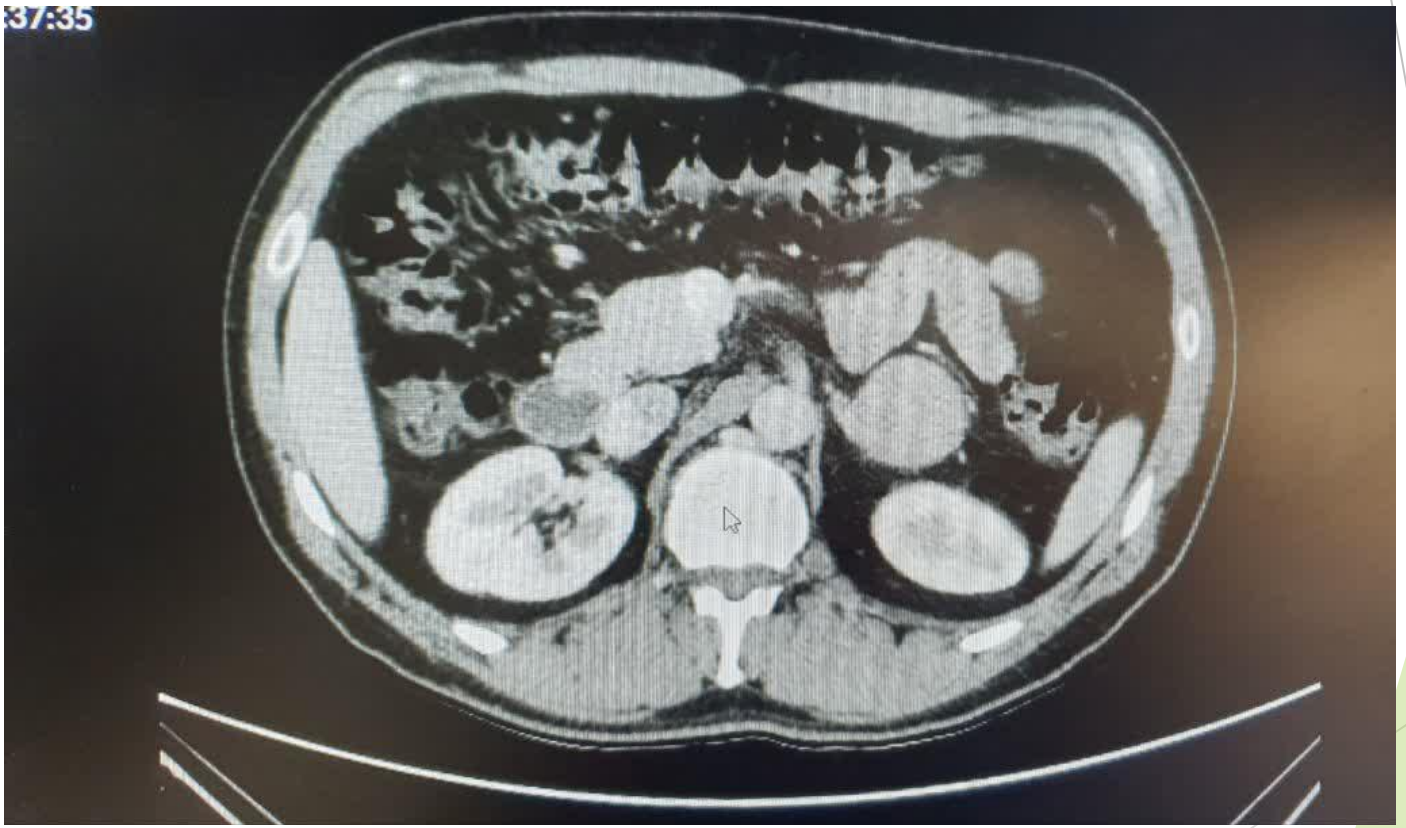
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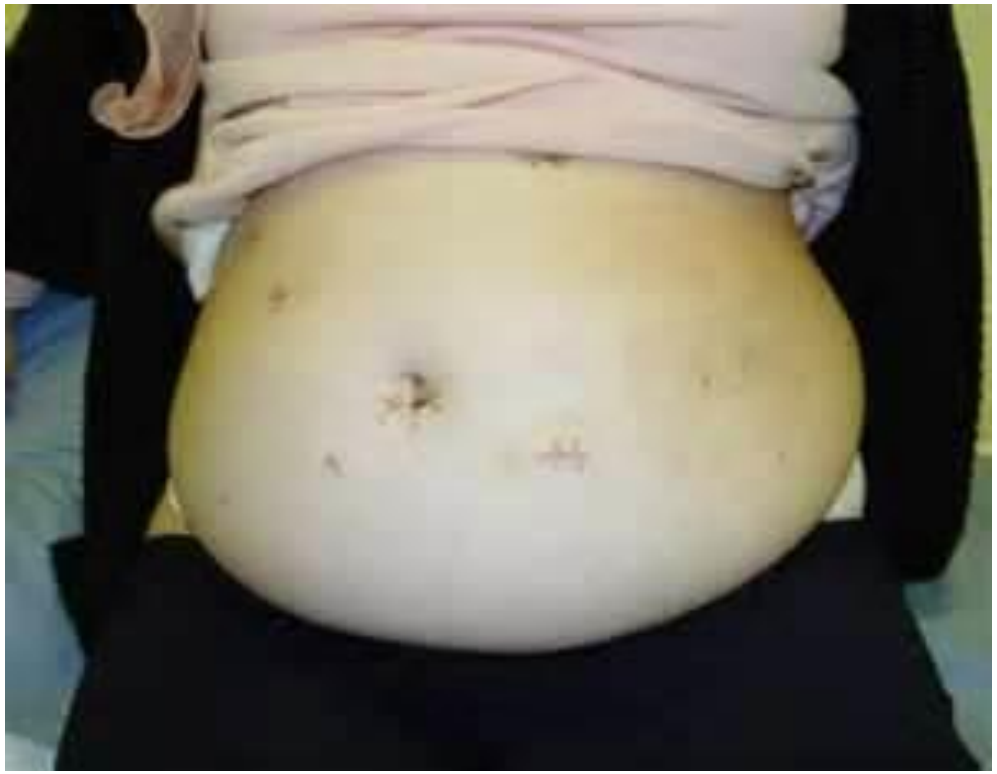

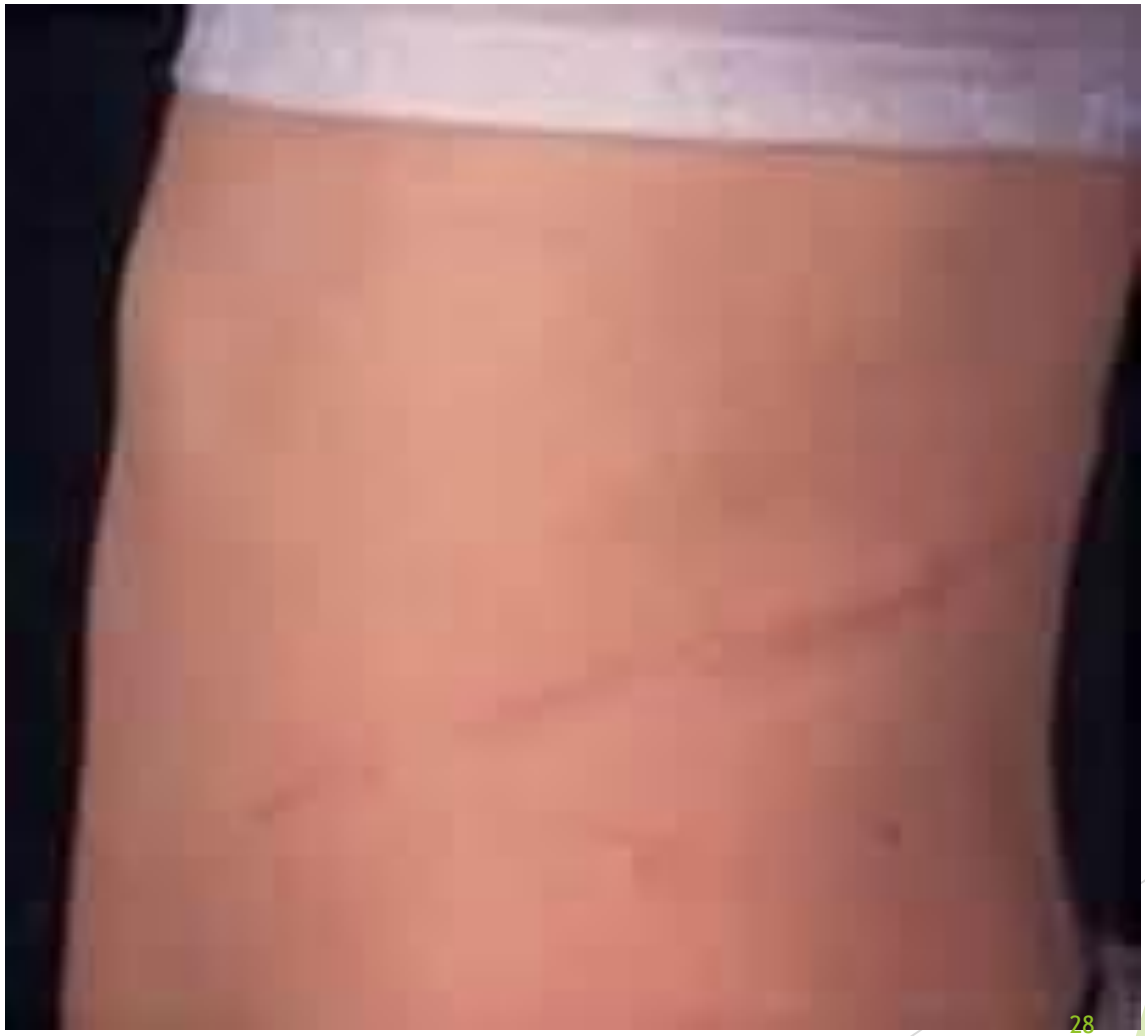

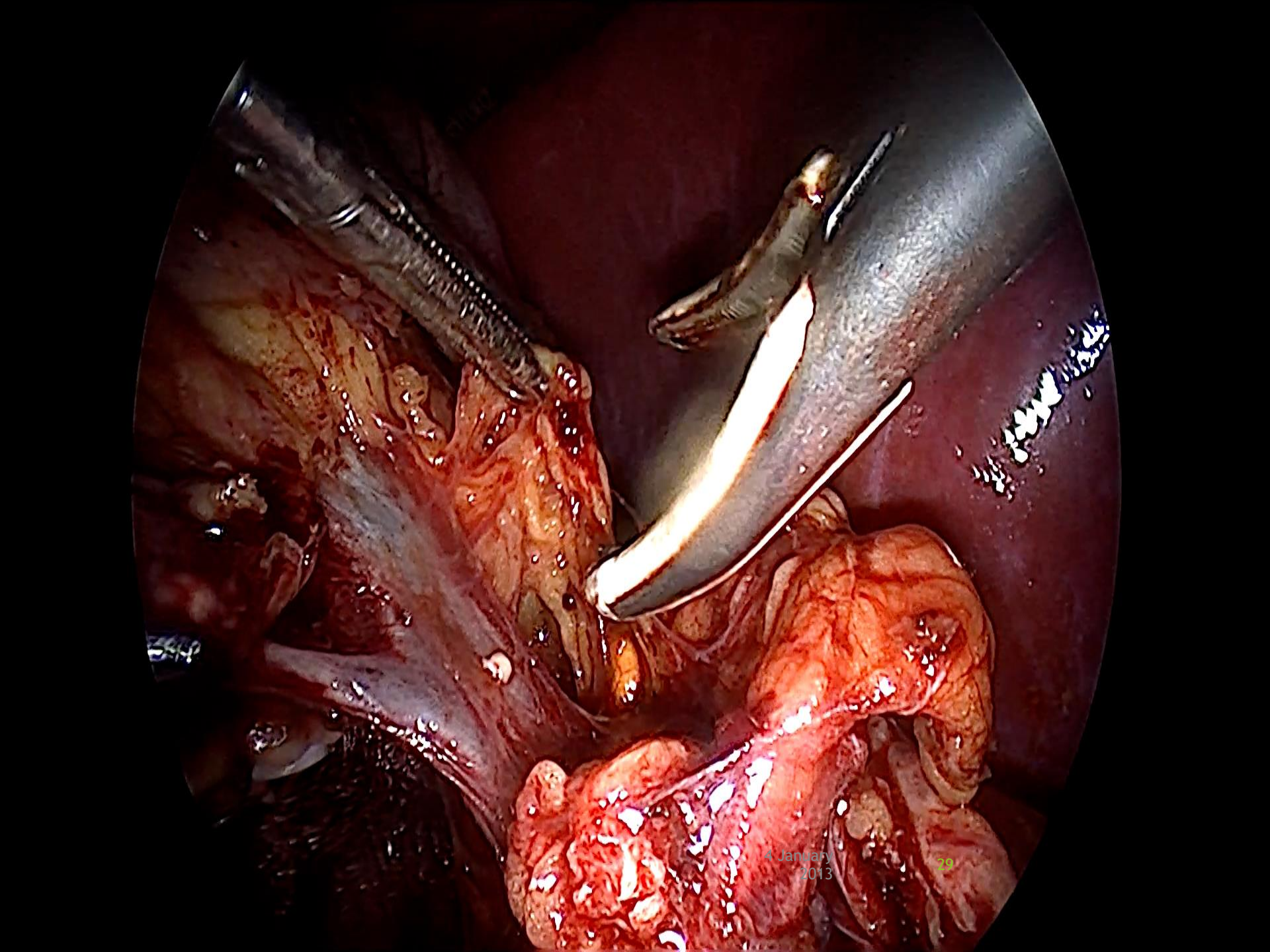
4 January
2013
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What is clear is that laparoscopic adrenalectomy has become the standard for adrenal surgery.

THANKS FOR YOUR ATTENTION