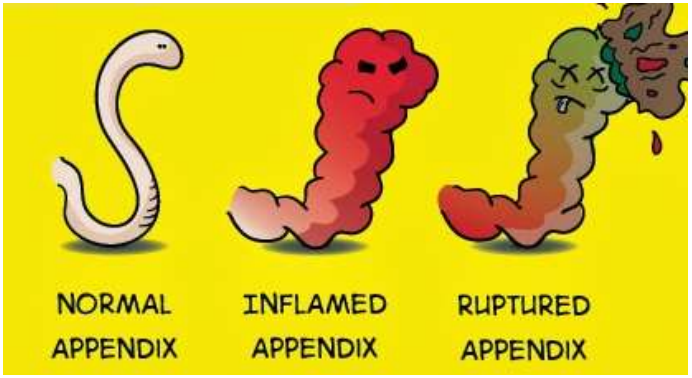
LAPAROSCOPIC APPENDICECTOMY



INTRODUCTION

- The "lappy appy" is a common case that finds itself on the CEPOD list.
- These cases have it all for a novice trainee, an RSI, a tube and significant post op analgesia considerations.
- Make sure you get exposure to a few of these cases before you complete your IAC as you will be expected (and want to!) to do these cases solo when you are on the on call rota

PRE-OPERATIVE ASSESSMENT

- Often young (though can be older) these patients are often straightforward assessments

- Special history considerations:
  - Degree of sepsis
    - These young patients can impressively compensate until they come face to face with a syringe of propofol – beware!
    - Look at the bloods, obs – be prepared
    - This will also give you an idea how long/complex the operation will be
  - Gastric stasis
    - Have they been vomiting recently?
    - How high risk with this RSI be?

DRUGS

Propofol
If young/agitated/not septic
GENEROUS dose
20 – 30 mls

Rocuronium
RSI dose 1.2 mg/kg (roughly)
This will give you 1 -1.5 hours of paralysis
Hopefully timed well with length of surgery so no further doses needed (for abdo relaxation) and can reverse with glycopyrrolate/neostigmine

Anti-emetics
Two antiemetics if no contra indications
Usually ondansetron and dexam3theasone

Analgesics - MULTIMODAL

- This operation can be SORE
  - Especially if it was a significantly inflamed/ruptured appendix
- Opiates (see opiate strategy)
- Paracetamol IV (if not recently had)
- NSAID (if not asthmatic/no significant bleeding) – IV ketorolac or diclofenac
- Surgical infiltration of local anaesthetic
  - Use 0.5% bupivacaine
    - More concentrated, surgeons don't need volume
  - Calculating the dose
    - Max dose x weight/10 = mls of 1% to give
    - Can work from here for different percentages, for example if the above if the patient was 70kg
    - 2mg x 70/10 = 14 mls of 1% bupivacaine
    - Therefore can have up to 28 mls of 0.5% bupivicaine

OPIATE STRATEGY

Fentanyl .....micrograms

Morphine .....mg/ml

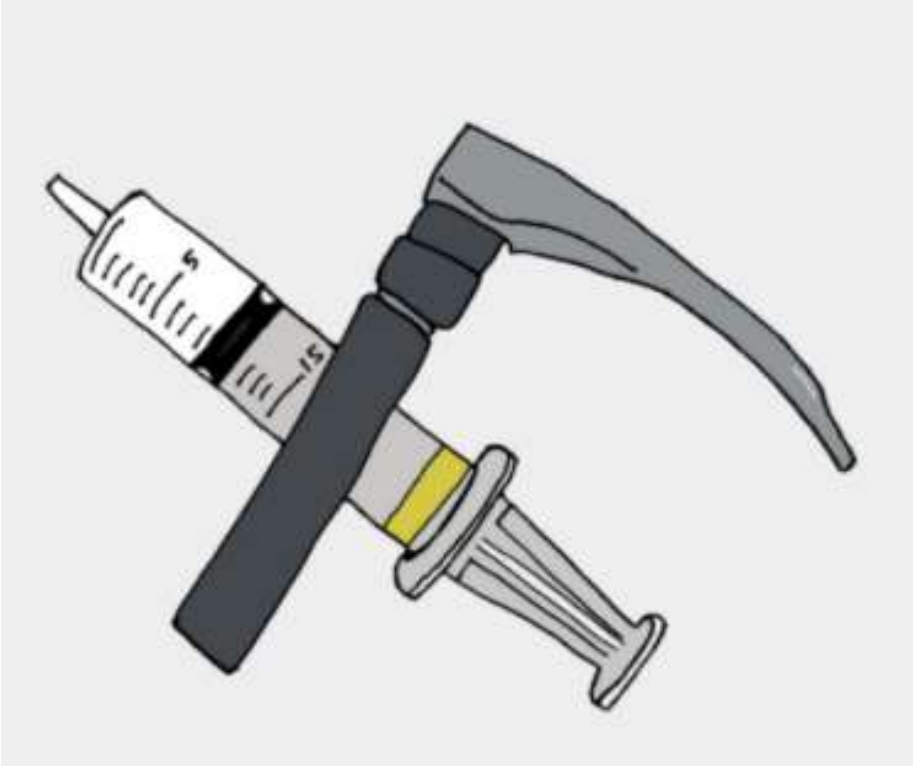
HERE IS WHERE THERE IS SOME VARIATION IN COMMON PRACTICE AND BEAUTY OF IT IS YOU GET TO TRY BOTH AND PICK YOU FAVOURITE, THE TWO MAIN STRATEGIES ARE BELOW:

- Fentanyl only strategy
  - Ask for 500mcg "big fentanyl" vial
  - 150 – 200 mcg for induction
  - 50 – 100 mcg boluses in response to patients sign of pain or ~ every 30 mins
  - Aiming for 300 – 400 mcg fentanyl total (better to give earlier so the patient will breathe at the end of the operation)
  - Advantages
    - The thought process here is even though fentanyl is a short acting opiate as we have given such a large dose we have saturated the peripheral compartments with fentanyl that will slowly leach back into the circulation – making it an effective post operative analgesic
    - "Clean opiate" – less nausea and vomiting than with morphine
  - Disadvantages
    - Failure to give a suitable dose might mean the patient doesn't get the long lasting pain relief
      - May be comfortable in recovery but in pain once back in the ward!

- Fentanyl/morphine strategy
  - Ask for 100mcg of fentanyl and 10mg of morphine (make up in 10ml of saline to 1mg/ml)
  - 100 mcg fentanyl for induction
  - Work out your total dose of morphine you will give to the patient = 0.1mg/kg
  - Give half of that dose once the patient is asleep everything is being set up in the operating room
    - This is for intraoperative analgesia – be aware it takes 15 mins for morphine to reach its peak effect, so get it in early
  - Give the rest of the dose as the surgeons start closing up – this will hopefully time it well for their wake up
  - Advantages
    - Long lasting opiate – will work recovery and on the ward
  - Disadvantages
    - "Dirty opiate" – you may be faced with a vomiting patient in recovery
      - More likely if female and describe previous intolerance to morphine/codeine

INDUCTION

- RSI
- ETT
- Temp probe + bair hugger
  - Often febrile – don't cook them in the hugger
- Large cannula – they can bleed!



THE SURGERY

- Operating time 1 -2 hours
- Key points
  - Insufflating the abdomen – watch for vagal bradycardia, have some glycopyrrolate/neostigmine to hand!
  - Pneumoperitoneum
    - The airway pressures will increase and the patient may become more difficult to ventilate
    - Also the CO2 will steadily rise as its absorbed in the abdomen
    - Therefore anticipate this and ventilate with a decent minute volume before the pneumoperitoneum is established – this will give you leeway later on if you have to come back on your ventilation
  - Keep the patient relaxed and deeply anaesthetisted until rectus sheath is closed
    - Spontaneous breathing/coughing/tense abdo muscles all make the surgeons job harder
    - Once they are suturing skin this is less important, start lightening the anaesthetic to time your extubation

EMERGENCE AND EXTUBATION

- Whilst deep suction upper airway
- As with any RSI, extubate sat up, awake and adequately reversed
- Timings
  - Waking a patient up at the right time is an art
    - Turn off the anaesthetic gases too early – patient begins to cough/wake when still on the operating table
    - Turn off the anaesthetic gases too late – patient snoozes for 10 – 15 mins sat up in the trolley whilst you make small talk with your ODP
  - At the start, play it safe – better to wake up slowly than unsafely!
  - Learn the art of safe and efficient emergence
    - Rough guide
      - Turn volatile agent off once they are suturing the skin, but keep the flows low
        - Important to turn OFF end tidal control here if you had it on as otherwise it will set the flows high automatically
      - Allow the end tidal MAC to slowly drift down to ~ 0.5
      - Once the last suture is in crank the flows up to expel the system of volatile gases – this will speed the decline of the end tidal MAC
      - The patient often wakes up when the MAC is ~ 0.1 – be prepared for exceptions!

POST OPERATIVE CARE

- Clarify from the surgeons the plan for
  - Oral intake
  - Post operative antibiotics (what and for how long?)
  - Post operative enoxaparin (when can they have their first dose?)
- Prescribe post-operative analgesia/anti-emetics
  - Often part of a post operative pack
  - Ensure regular paracetamol, PRN oramorph/codeine/NSAID/anti-emetics
  - Prescribe recovery room IV opiate
    - Use fentanyl if used only used fentanyl intraoperatively
    - Use morphine if loaded with morphine intraoperatively