**Informal EES Feedback Notes**

**23-Sep-2016: Dr. Cushing & Dr. James:**

Q – Reasons to use endoscopy:

A – 1. avoiding incision which will be best for the patient 2. Endoscope allows visualization where traditionally you can’t 3. Surgeons want to use the latest skills and techniques

Q – What instruments should be developed?

A – making instruments go where we are looking, this is true for the microscope. Need to increase the reach with the end of the instrument used with endoscopic surgery. Want to access the deep facial recess, antrum.

* Combining functions eg. Combine suction with other instruments
* Ensure the instruments are similar to existing tools that surgeons are already familiar with in terms of looks, feel and grip – don’t want to learn to use a new instrument
* Use only a few instruments out of the set

Q – why use certain instruments? What are their advantages?

A - If the blade has the same curve as Rosen = more beneficial than straight

* Getting the graft in is tricky and requires ‘macro’ moves – making macro moves with the endoscope is tricky

Problem: putting tissues in tension with the non-dominant hand. Eg. Want to hold tissue while cutting it. Solution idea: suction slider along the endoscope, have a ‘clip’ to hold things like the malleus in place – currently using the cotton balls.

* Flexible sucker to bend in shape – ANSPNCH – irrigation tube

Problem: bleeding – develop instruments like cautery – add insulation to a tool

**27-Sep-2016: Dr. Papsin**

Disadvantages:

* don’t like one-handed surgery but Panetti round knife and left and right suction have made the process easier and caused him to use EES
* **visualization**:
  + good for smaller scopes but
  + missing a lot of visualization on the sides
  + need to move the endoscope in and out frequently to get the whole picture
  + hard to adjust from the microscope
  + left hand is considered a ‘holder’
* **steep learning curve** – require training with blood
* time to decision. (decision = to use microscope or endoscope?)
  + waste time raising the flap, looking around, dissecting, it is difficult and doubles the time and he ends up using the microscope in the end and opening up the ear – where he has found a tumor which would not be visible by endoscope
  + the indication for endoscope should be tympanoplasty and cholesteatoma
  + need to make the decision to use endoscope with additional imaging to ensure endoscope will in fact be the right tool
* takes a long time
* no research study that shows it really is worth while
* keep doing endoscopic ear surgery because:
  + endoscopically assisted microscope surgery – but know that the endoscope is most likely not going to help because it won’t fit into the tiny incision

Advantage:

* allows you to understand the microanatomy of the middle ear
* good teaching tool because everyone can see
* no scar morbidity

Why use the endoscope?

* when surgery is done, no need to close
* saves opening and closing time
* but endoscopic surgery process already takes a lot of time and still takes longer than the time gained by not having to open and close

Instrumentation:

* self-cleaning tip for endoscope (like windshield wipers) to reduce the number of times the endoscope is removed from the ear, and suction that can slide
* wristed flexible endoscope – for transoral laser surgery
* robotic wrist that goes to the target and fixes into place
* TORS – size of instruments are too big for oral robotic surgery
* Shaft size = smaller, stiffer but want suction integration
* smaller, shorter scopes
* endoscope holder to free a hand and if can use that hand – that’s even better
* self-cleaning tips
* lock in place positioning to find the target for the endoscope and fix it there to free up the second hand

Reason for not adopting endoscopic ear surgery – surgeons feel inferior and don’t have a good reason for not using it

28-Sep-2016 – Dr. Parkes

* Note: name the instruments in an intuitive way
* Scopes traditionally used to look around corners
* Longer scope -> more working room

Disadvantages:

* Speed/time – hard for one hand to maintain the operating field clean
  + Panetti suction instruments made this easier but not approved by FDA therefore not widely available
* Time to decision – when do you quit and use the microscope? This can’t be known until you try which consumes time
* Angled scopes can be unsafe because you will be introducing an instrument blind
  + Can see well but maneuvres are less safe as the view is distorted and translating your hand movements to the movements in the angled operating field is not intuitive
* Keep having to flip between scope, suction and to wipe the scope
* Panetti suction dissector can’t reach into full viewing range but instruments that are longer and bent to reach don’t have the proper end effector
* 3mm endoscope (better size) doesn’t have as good optics

Advantages:

* Good visualization especially with angled scopes

Ideas:

* Endoscrub – auto-irrigation sheath that is controlled by a pedal
  + disposable sheath adds to the tool diameter
* wants a graft manipulation tool (graft pusher)
* open to any ideas to make his job easier

**28-Sep-2016 – Dr. Forte**

When approaching a new surgical technique:

* IS THERE A NEED? DOES IT FULFILL A GAP?
  + need – unclear
    - there are many advances in surgical technologies and anaesthesia
    - eg. Microscope was a game-changer
      * had a shallow learning curve, easily teachable
      * came with miniature instrumentation
      * two hands
      * people are comfortable with it
      * balanced, simple, doesn’t drift
      * makes the life of a surgeon easier
* To address the learning curve:
  + Require a resource and education system designed around the new technique
  + Steep learning curve
    - EES – courses and workshops (are these enough? Are they effective? Are more people using EES?) – not as available as others such as temporal bone course
* It’s a change – how easy is the change from microscope to endoscope?
  + Endoscope affects depth-perception
* What is the cost associated? – hospital (time, bed), patient, instrumentation, sterilization, extra steps to prepare OR? => healthcare equation
* Is the technology readily available? Robust? Disposable?
* Does it make the surgeon’s life easier by using it?
* Complications? – from the procedure, technology
  + Is it a better solution? Does it pose less complications? Less morbidity?
  + If there are a low frequency of complications, what is the severity? If results in death – shouldn’t use the procedure at all no matter how infrequent
    - It saves an incision – is there really a benefit to this?
      * Good for patient but incision cannot be seen most of the time
      * No incision is more of an advertising/marketing thing because no none has complained of this to Dr. Forte
      * But no incision reduces morbidity and can send patients home sooner as there is no big wound
      * Small vs. large incision cochlear implant – surgeon struggling with the surgery takes a physical toll on the surgeon’s longevity
    - Surgery requires three things: exposure, light and hemostasis and cannot compromise on these
      * Exposure in EES – less than microscope but can extend the field of view with different angled scopes which causes excellent exposure
      * Lighting for endoscope and microscope is good
      * Hemostasis – require suction or cautery integrated with the tool – easy with two hands
* Does it increase/decrease longevity? – there must be a benefit to the surgeon
  + What is the effect on the surgeon? Will they have to change posture? What is the effect of the light, positioning of instruments, grip on their posture – physical long-term effects?
  + What is the effects on the surgeon’s physical well-being and happiness? Does it make them happy to use or frustrated?
* How to improve EES – make it easier to use
  + Combine a tool with suction or electro-cautery

Ask surgeons informally what keeps them from using EES? – can compile these informal interviews into a questionnaire – tell them this is informal and confidential

Joe Chan from Sunnybrook

Dr. Papsin

Gian Marco

Dave Pothier

John Rutga

Visiting faculty for the course

**Questions:**

1. What do you think about EES?
   1. Why do you do it or not do it?
   2. What are the advantages?
   3. When do you do it?
2. What are the surgical limitations of the endoscopic approach?
   1. How much of those limitations are due to the instruments available?
   2. How do you think instruments can be improved to ease EES?
   3. What are things that you find difficult? What would put you off it? How can we overcome these obstacles?
3. Do you require greater reach? What do you want instruments to do when reach is accomplished?
4. Do you need to put tissues in tension to facilitate the other hand’s function? For example to aid in cutting?
5. Do you require bleeding control?
6. Do you think an instrument that incorporates suction with another function (ie. Forceps, dissector, blade) would be useful for endoscopic surgery?

Survey – include contact email if they would like to collaborate with ideas for technological advances.