sient process (Brodell et al., 1989).

Another interesting finding, as documented in an article entitled "Pregnancy Associated Osteoporosis", is the reported higher incidence of fracture at a younger age in the mothers of TOH patients as compared to a control group. Sixteen mothers of the 29 women found to have pregnancy induced osteopenia, as compared to 7 mothers of women in the control group, were found to have had fractures. The majority of those mothers fractured before 45 years of age. The theory in this article is based on the question of a potential genetic link in identifying this as a pre-existing condition (Dunne et al., 1993).

While many theories have been suggested in determining the cause of TOH, the condition, its treatment and prevention remain a puzzle. There appears to be limited documentation of TOH in the literature. In fact, Goldman et al., (1994), in the International Journal of Gynaecology & Obstetrics, suggests that the number of reported cases is 53. This small number may be the result of the fact that common complaints of pregnant women include hip and back pain, and these complaints are regarded as part of the normal progression of pregnancy. The reluctance to order radiological imaging during pregnancy has also made diagnosis difficult. The International Commission on Radiation Protection stresses the need to keep radiation doses to unborn children as low as possible. Studies have suggested a possible link between prenatal radiologic exposure and an increased risk of childhood cancer. Recommended practices for employees include decreasing the amount of time spent in the radiation area and proper shielding. In the case of the patient in discussion, intraoperative shielding and exposure limiting, and postoperative films with abdominal and pelvic shielding, also assisted in lowering these risks.

Conclusion

The question remains as to whether pregnancy is indeed a causative factor or a poorly timed event in the progression of TOH. While many theories have been identified, the priorities for the perioperative nurse in treating the pregnant patient remain well-defined. These include minimizing the patient's pain, fear, and anxiety. Reassuring the patient regarding the safety of the anaesthetic and surgery are measures which can reduce the patient's apprehension, especially in the preoperative phase. Minimizing aortocaval compression by means of uterine displacement, achieved by placing a roll under the right side of the patient's torso, is one way of promoting adequate blood flow to the fetus. Fetal monitoring intraoperatively can also be an excellent indicator of the mother's oxygenation and pressure. Perhaps the most important priority for the perioperative nurse is in the consultation with other health disciplines. Actions such as intraoperative fetal monitoring and patient positioning resulting in uterine displacement, are not always possible. These are often dictated by the type and nature of the surgery.

Preoperative planning with anaesthesia, surgery, patient unit and PACU nurses, and obstetrics, can amalgamate the multitude of ideas which will optimize the surgical experience for the patient and the fetus.

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Overheard in the OR...

Tell me what you need, and I'll tell you how to get along without it !

Predicting Difficult Airway Access in the Preoperative Clinic

By Sue Leddy, R.N., B.Sc.N., C.P.N.(C)

Recent changes in the health care system have led to more complex surgeries being done on more complex patients on a day surgery basis. To ensure adequate preoperative assessment, screening, testing, and preparation of surgical patients, the Pre-Admit Clinic has evolved.

At the Pre-Admit Clinic, the following data is collected and reviewed:

- surgeon's physical and history
- surgical consent
- patient history (using Pre-Anaesthetic Questionnaire)
  - prior surgeries and anaesthesia
  - list of medications, allergies
  - social history
- review of systems
- physical examination
  - vital signs
  - height and weight
  - cardiac and respiratory system examination
  - any other system examination warranted by the history
- laboratory testing (condition specific)
- investigative tests if required based on patient's conditon
  - EKG
  - Pulmonary Function Test
  - Chest X-Ray

The Pre-Admit Clinic nurse ascertains the patient's present health status, and the stability of any existing problems. Referrals to the anaesthetist are made as necessary, for further investigation, perioperative risk assessment, and/or anaesthetic management planning.

In addition, the Pre-Admit Clinic nurse intervenes to reduce patient anxiety through education. The patient is taught regarding:

- anaesthesia method of choice
- preoperative preparation required (shaves, scrubs, preoperative medication, etc.)
- intra-operative procedures
- postoperative care including pain control, activity, diet, dressing and wound care and follow up.

One area of assessment at the Pre-Admit Clinic that has been slower becoming established is that of preoperative Airway Assessment, to predict the difficulty of airway access and management in the Operating Room. Often the patient is not seen by the Anaesthetist until the moment of surgery, and planning and management of difficult airway is not facilitated in this way. The Pre-Admit Clinic offers the opportune time for a full Airway Assessment to occur.

Estimates of the incidence of difficult intubation under controlled conditions in the Operating Room vary widely, depending on the definition used, patient population studied, and skill of the operator. The frequency of failed intubation is thought to be approximately 1 in 500, (Deem and Bishop, 1995). These failures also increase the patient's risk for morbidity and mortality.

Author

Sue Leddy, RN, BScN, CPN(C), is staff nurse, Operating Room, PACU, Pre-Admit Clinic, and Day Surgery, Alexandra Marine and General Hospital, Goderich, Ontario.

Most difficult intubations can be predicted, but approximately half of those predicted to be difficult will be easy, (Lewis et al, 1994). Some difficult airways will be missed with preoperative assessment, and many will be identified falsely positive, but assessment of airway in the preoperative setting does much to screen for problems, and will promote proper planning and management. A number of airway screening methods exist, but studies have shown that the predictable value is greater if a combination of a number of factors is assessed. The following is one method of performing airway assessment, but the author acknowledges that there are others as well.

Performing the Airway Assessment

1. Take Patient History

The history taking should be focused on aspects that relate to airway management. Ask about previous surgeries and anaesthesia. Try to determine if the patient has undergone successful intubation previously. Some surgeries do not require intubation. The patient who previously underwent D & C may have been bag and mask ventilated, but now that she has presented for a laparoscopic tubal, she will be intubated.

Ascertain the existence of conditions that can predispose to difficult airway access, such as obesity, pregnancy, neck contracture, etc. See Table 1. for a more detailed explanation of pathology to watch for.

2. Assess Neck Range of Motion

With the patient in a sitting position, ask them to flex and extend their neck. This assesses the mobility of the C-Spine, which is required in intubation. Be alert for history of previous fractured or fused neck, arthritis, diabetes, surgery, or any other condition that may limit this movement.

3. Assess Temporomandibular Joint Mobility

Determine if history of pain, joint noises, jaw locking, or previous trauma. Ask the patient to open their mouth as wide as possible. Assess the number of fingers you can fit into the mouth opening. The measurement can be documented in fingerbreadths, and should be at least two. Limitation of mouth opening may be caused by tight TMJ ligaments from IDDM, trauma, TMJ dysfunction or arthritis, or trismus (painful mouth opening) due to intra oral inflammation. All of these can cause diminished access to the larynx.

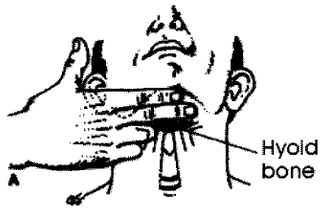
Place your index finger bilaterally preauricularly, and ask the patient to open their mouth wide. You should feel your index finger fall into a depression as the mouth opens. Listen for clicks, pops, or crepitus as the mouth opens.

4. Measure Thyromental Distance

The thyromental distance is the potential retro mandibular space into which the laryngoscope can displace the tongue. Viewing the patient from the side, and with the neck fully extended, place your fingers under the patient's chin, from the thyroid notch (Adam's Apple), to the mentum (lower border of the chin). The number of fingers you can place side by side between these structures is documented as the Thyromental distance. It should be over 6 cm, or three fingerbreadths. Causes of decreased thyromental distance may be micrognathia, anteriorly positioned larynx, scars, neck masses, or C-Spine abnormalities limiting extension.

5. Assess dentition

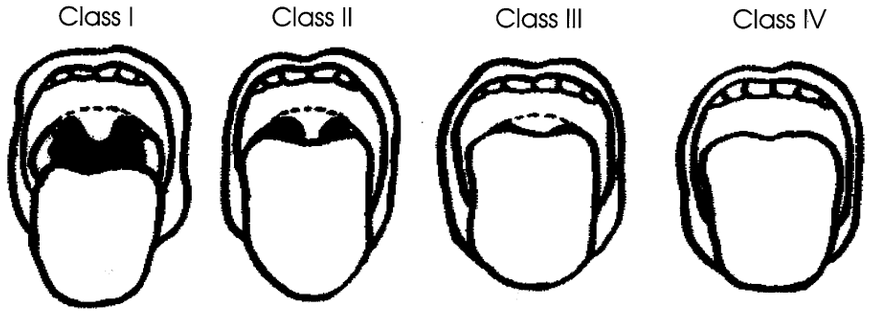
Identify and document any loose teeth, capped teeth, dentures or bridges. The edentulous patient will afford easier visualization of the larynx. Overbiting and prominent upper incisors often signal a small thyromental distance and micrognathia but may be purely dental and will increase the risk of trauma to these teeth at laryngoscopy.



From J.L. Benumof, 1993

6. Assess Hypopharyngeal Classification Using Mallampati Score

With the patient in sitting position, have them either extend neck, or assume sniffing position. Ask the patient to open their mouth as wide as possible, and extend their tongue forward. Tell patient not to say ahhh. Phonation is not desired initially, but can be done to incease the structure visibility if a grade III or IV was noted. Using a small flashlight shining into the open mouth, and with your eye level at the mouth, visualize the pharyngeal structures. The view is then graded.



Mallampati I soft palate, uvula, fauces and pillars visible
Mallampati II soft palate, uvula, fauces visible but pillars obscured
Mallampati III soft palate only visible
Mallampati IV soft palate not visible

Nurses working in the Pre-Admit Clinic are comfortable with physical assessment and history taking, and have a broad depth of knowledge upon which to draw when assessing the patient for surgical readiness. The addition of Airway Assessment to their repertoire will add to the thoroughness of the preoperative assessment.

Table 1 Pathologic Conditions That Can Potentiate Difficult Airway Access

Condition	Difficulty
Congenital Anomalies: micrognathia, Pierre Robin Syndrome, Cleft Lip, Cleft Palate, Trisomy 21	Anatomical distortion of airway
Inflammatory: epiglottitis, Ludwig's angina, retropharyngeal abscess	Distortion of airway. Can make ventilation or intubation very difficult.
Rheumatoid Arthritis	Flexion-extension limitation, absent Crico-arytenoid calcification. Impossible to visualize larynx and airway lumen narrowed. Danger of C1-C2 dislocation due to erosion of transverse ligament around the dens
Ankylosing Spondylitis	Fusion of cervical spine can prevent direct laryngoscopy
Cervical Osteo-Arthritis	C567 osteophytes - reduction of movement. Difficulty visualizing and reaching cords.
Fracture of maxilla, mandible	Airway obstruction, difficult bag and mask ventilation, difficult intubation
Fracture of Cervical Spine	Unable to extend neck. If unstable, may damage spinal cord. Poor visualization of cords.
Endocrine Causes	Acromegaly: large tongue, bony overgrowths. Goiter: can produce airway compression or deviation. Hypothyroidism: large tongue, abnormal soft tissue, hard to ventilate and intubate
Neoplasia: pharyngeal, laryngeal tumors	Inspiratory obstruction with spontaneous ventilation
Diabetes: IDDM	"Stiff joint syndrome" with decreased mobility of neck with extension and flexion
Obesity: Sleep Apnea	Desaturate quickly, upper airway obstruction on induction, large chest makes it difficult to manipulate laryngoscope to view structures.
Radiation therapy	Fibrosis can distort airway, decrease mobility
Pregnancy	Risk of reflux aspiration, laryngeal edema

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Conference Calendar

November 3 - 6, 1998
27e Conférence provinciale - 27th Provincial Conference from CIISOQ/CORNQ
"New century ... New Challenges" at Queen Elizabeth Hotel in Montreal, Quebec. Further information Louise B. Vadeboncoeur, 791 de Boulogne, Repentigny QC, J6A 7T7.

June 14 - 18, 1999
16th National ORNAC Conference-Halifax '99
Sheraton Hotel & World Trade and Convention Centre, Halifax, Nova Scotia. Chairperson Donna Farid, President of the ORNAC. Sharon Green, Program Chair.

July 25-30, 1999
World OR Conference. Helsinki, Finland.

April 20-27, 2001
17th ORNAC Conference - Banff, Alberta.
Conference Chairperson- Gloria Nemecek.

Early Detection Makes A Difference

The best weapon against breast cancer is early detection. The Canadian Cancer Society recommends that a woman have a mammogram every two years after age 50, have their breasts checked annually by their doctor and practise monthly self-examination (BSE).

Women and their families can obtain current, up-to-date information about breast cancer by calling the Canadian Cancer Society's Cancer Information Service at 1-888-939-3333. The Service is available in English and French, Monday to Friday, 9am to 6pm. A valuable resource for women with breast cancer is the *Canadian Clinical Practice Guidelines for the Care and Treatment of Breast Cancer*. The guidelines, which were released in February 1998 by Health Canada and the Canadian Medical Association Journal, are supported by the Canadian Cancer Society. The guidelines describe expected care at specific points in a woman's experience of diagnosis and treatment of breast cancer. Women can obtain the guidelines by calling the Canadian Cancer Society's Cancer Information Service.

WWW for OR nurses

ORNAC Online http://www.ornac.ca
The Operating Room Nurses Association of Canada (ORNAC) has a web site which provides varied information on perioperative nursing in Canada. Members of ORNAC are working continuously on this website to improve it. Through this site you can access several other nursing sites and keep up to date on what is happening in Canada.

AORN ONLINE http://www.aorn.com
This website provides access to the American OR journal, reference library, and current events affecting nurses in the USA.

AORN Clinical Online Consultative Service http://www.aorn.org/CLINICAL/ONLINE
This online service is available to all members of AORN. You can submit questions regarding AORN standards, and suggested practises. The consultants online are good about sending back information to you, and within days.

PERIOP is an electronic forum for perioperative nurses, and those interested in Perioperative nursing. You receive information through email messages. Currently there are over 500 subscribers. This forum allows nurses in rural and isolated areas to network with their peers and get opinions and answers to their questions. It introduces North American nurses to healthcare culture in other parts of the world and lets nurses from that world listen in on our concerns. Once you join this **free service**, you can submit questions to the group.
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Leave the subject line empty.
In the body of the message, type only: subscribe periop Firstname Lastname. Turn off any automatic signature that attaches to your message, as this will confuse the computer. You will receive a confirmation message. Just reply automatically and send back the message. This confirms your subscriptions. Within 24 hours you receive a welcome message indicating a successful subscription. Save this message for future reference, as it will give information such as temporarily stopping the service (when you are on holidays). From then on, the messages will come everyday. This list is maintained by the List Processor at the University of Washington.

In 1998, it's estimated that:

- 62,700 Canadian women will be diagnosed with cancer;
- 19,300 or 30.8% will be diagnosed with breast cancer
- 29,100 will die of cancer
- 5,300 or 18.1% of those deaths will be caused by breast cancer