Challenges & Opportunities in Stoma Management

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Challenges and Opportunities

- Content
  - Challenge of managing the obese patient with a stoma
  - Tools for evaluating peristomal skin
  - Level of evidence in stoma care

Obesity

- Definition: Body Mass Index (BMI) ≥ 30 kg/cm²
  \[ \text{BMI} = \frac{\text{body weight (kg)}}{\text{height}^2} \]
- 30-50% of all adults are overweight or obese in the US, Canada, Britain & the European Union¹
- Called an “obesity epidemic” in emerging developing countries²


Obesity is a risk factor:

- Higher death rates from cancer
- Colon and rectum
- Males: risk increases up to 80% in with a BMI > 30¹
- Prognosis is poorer²
- Higher incidence of recurrence³
- Diverticular Disease
- Higher risk of complications⁴

Obesity: Impact on the Colorectal Surgical Patient

- Wound Infection
  - Decreased O₂ in relatively avascular adipose tissue¹
  - Ischemia along suture line¹
  - Greater wound area²
  - Prolonged surgical time²

² Gendall, et al Dis Colon rectum 2007:50,2223

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Obesity: Impact on the Colorectal Surgical Patient

- Wound Infection: Impact on Stoma Patients
  - Decreased O₂ in relatively avascular adipose tissue
    - Intervention: adequate oxygen post operatively
  - Ischemia along suture line
    - Intervention: frequent assessment of incision

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Obesity: Impact on the Colorectal Surgical Patient

- Wound Dehiscence
  - Separation involving all layers of the abdominal wall
  - Incidence: colonic surgeries 50% higher vs. other GI surgeries³
  - Obesity independent risk factor: dehiscence²

- Wound Hernia
  - May increase the rate of herniation via:
    - Increasing intra-abdominal pressure³
    - Impairing healing³
    - Predisposing to wound infection³

Obesity: Impact on the Colorectal Surgical Patient

- Anastomotic Leak
  - Risk factors: smoking, low anastomosis, male gender, preoperative chemoradiation therapy, excessive alcohol intake
  - Rectal resections (with low anastomosis), obesity major risk factor for leakage
- Operative Time/Length of Stay
  - Longer OR time for rectal resections
  - No studies found an increased length of hospital stay

3. Ehn et al., Colorectal Surg, 2001;11,246.

Obesity: Impact on the Colorectal Surgical Patient

- Laparoscopic Surgery
  - Advantages: less pain and ileus, better cosmetic results and quicker patient mobilization
  - Obesity is an independent predictor of conversion to open surgery
  - Open surgery (post laparoscopic surgery): more postop morbidity, mortality and prolonged hospital stay

2. Delaney et al., Dis Colon Rectum, 2005;48,975.

Obesity: Impact on Patients with Ileal Pouch Anal Anastomosis Patients

- Obesity increases the complexity & technical difficulties of pelvic & perineal exposure.
- Bulky mesentery may limit the pouch reach to the ileal anal anastomosis to create a j pouch.
- Short mesentery & thickened abdominal wall causes a challenge to make a stoma
Obesity: Impact on Patients with Ileal Pouch Anal Anastomosis Patients

- Candeo et al (65 matched patients)
  - Longer OR time (244 minutes versus 204 minutes)
  - Longer hospital stay (9.5 days versus 7.6 days)
  - Higher incidence of cardio-respiratory comorbidities
  - A trend for steroid & immunosuppressive therapy in pre op period
  - Long term outcomes did not differ
  - Exceptions: incisional hernia rate higher in obese patients

- Effron et al (31 matched patients)
  - Longer OR time (229 minutes versus 196 minutes)
  - Longer hospital stay (9.7 days versus 7.7 days)
  - Perioperative complications higher: prolonged ileus, pelvic sepsis & stoma complications
  - Long term outcomes did not differ
  - Exceptions: incisional hernia rate higher in obese patients

- Recommendations:
  - Perform the IPAA in three steps:
    - Colectomy, ileostomy with Hartmann's pouch
    - Weight loss: consider medical or surgical interventions
    - IPAA with loop ileostomy
    - Stoma closure

Candeo et al., Dis Colon Rectum, 2010;53,1030.
Obesity: Impact on Patients with an Ileal Conduit

- Kouba et al: Studied stoma complications
- Patient with a high BMI developed complications
- Age: 72 (obese) vs. 62 (non-obese) years
- 27% patients developed complications versus 16% of non-obese patients
- Peristomal hernia
- Stoma stenosis


Obesity: Stoma Complications

- Complications found in the obese stoma patient:
  - Necrosis
  - Retraction
  - Skin irritation
  - Peristomal hernia


Obesity: Stoma Site Marking Considerations

- Higher on the abdominal wall may miss the thicker section of the abdominal fat
- May allow the patient to visualize the stoma
Obesity: Stoma Site Marking Considerations

Location may be more important than protrusion

High on the abdomen, within site of patient

Providing several sites:

Trial of skin barrier to assess proposed site

Obesity: Pouch Emptying
Obesity: Stoma Complications
Retraction

- Treatment:
  - Use of a flexible pouching system

Peristomal Skin Tools: Rationale

- Success for our patients
  - Goal=predictable wear time and intact peristomal skin
  - Impaired peristomal skin system failure

Peristomal Skin Tools: Rationale

- Method to track skin issues
  - Provides early interventions and problem resolution
  - Provides data to base our interventions
  - Base our interventions on evidence
  - Improve continuity across the clinical settings
  - Hospital stay has decreased, less time for interventions
  - Communicates with all caregivers across the continuum
    - Acute care
    - Home care
    - Long-term care
    - Rehabilitation care
  - Early detection and intervention
Peristomal Skin Tools: Rationale

- Reimbursement Issues
  - Without evidence reimbursement may not occur
  - When peristomal skin issues are not identified/managed, costs rise
- Provision of ostomy care by non specialty caregivers
  - Limited amount of specialty nurses
  - Limited access to specialty nurses
  - A tool provides common language between all health care providers

- When complications not identified:
  - Rehabilitation is delayed
  - Quality of Life is diminished
  - Health care costs rise
- Early identification leads to
  - Early intervention
  - Identification of risk factors: prevention!


Peristomal Complications: How often do they occur?

- Problems in reporting
  - Variation in:
    - Type of stoma
    - Time frame of complication
    - Lack of definitions
    - Characteristics of stoma
    - Type of complications (stoma versus peristomal)
    - The evaluator: patient/nurse/surgeon

Salvadalena G.  JWOCN, 2008:35,596.
Ratliff C.  JWOCN, 2010:37,325.
Peristomal Complications: Studies

- Salvadalena:
  - Examined reports between 1990 and 2007
  - 6/21 studies noting peristomal complications
  - 3 included validity and reliability of the instrument
- Most frequently measured peristomal complications:
  - “Skin problems”:
    - 23% at 2 weeks
    - 40% at 6 weeks
    - 20% at 6 months
    - 14.7% at 3 months
    - 13% at one year
    - 10.2% at 18 months (ileostomy)
    - 18.4% at 18 months (colostomy)

Salvadalena G. JWOCN, 2008:35,596.

Wound Care Tools

NPUAP & EPUAP Staging

- Skin & Wound Evaluation

Peristomal Skin Tools: SACS Tool

- SACS Tool (2007)*
  - Italian setting; two groups
  - ET nurses and surgeons
  - Group 1 patients: < 1 year
  - Group 2 patients: > 2 year
  - Fecal stomas
  - Observed at weeks 1, 4, 12, 24 (clinical observation & images)
  - Consensus conferences with expert panel developed and accepted the classification system
  - Developed using the images a classification system for peristomal skin disorders

Bosio et al, OW Management, 2007:59,38
SACS Tool

- Classifies peristomal lesions by
  - Lesion type (level of skin depth involvement)
  - Location in relation to the stoma

- Definition and Classification of Peristomal Skin (lesion type)
  - L1=Hyperemic lesion (red skin no loss of surface)
  - L2=Erosive lesion with loss of substance not extending past dermis
  - L3=Ulcerative lesion extending beyond the dermis
  - L4=Ulcerative fibrinous/necrotic lesion
  - L5=Proliferative lesions

*Lesion
SACS Tool

- Assess & Classify Lesion
  - L1=Hyperemic lesion (red skin no loss of surface)
  - L2=Erosive lesion with loss of substance not extending past dermis
  - L3=Ulcerative lesion extending beyond the dermis
  - L4=Ulcerative fibrinous/necrotic lesion
  - L5=Proliferative lesions
- Answer: L4

SACS Tool

- Identify Lesion Location
  - TI=Left upper peristomal quadrant
  - TII=Left lower peristomal quadrant
  - TIII=Right lower peristomal quadrant
  - TIV=Right upper peristomal quadrant
  - TV=All peristomal quadrants
- Answer: TI & TIV

SACS Tool

SACS Classification: L4, TI & TIV
Validation of SACS Tool
- Bosio\(^1\) established face validity
- Experts (nurses and surgeons)
- Beitz\(^2\) et al. established content validity index (CVI)
  - .95 (out of 1)

\(^1\)Bosio et al. CW Management, 2007:59.38
\(^2\)Beitz J. et al. OWM 2010:56.22.

Peristomal Skin Tool
- Ostomy Skin Tool\(^1\): (for assessing & managing)
- Purpose:
  - Score the peristomal skin through objective observations
  - Categorize the peristomal skin disorder according to cause
- Does this by:
  - assessment of the peristomal skin
  - assessment of the peristomal skin at a particular point in time
  - assessment for improvement or a degradation over time

\(^1\)Martins L et al. WCET Journal, 2008:28.8

Peristomal Skin Tool
- The Ostomy Skin Tool:
  - Evaluation of abnormal peristomal skin
    - Discoloration
    - Erosion
    - Tissue overgrowth
  - Severity
    - 1=discoloration
    - 2=discoloration with complications (pain, shiny, indurated, etc.)
  - Area
    - Normal
    - 1=25%
    - 2=25-50%
    - 3=>50%
The Ostomy Skin Tool

**Area of Discoloration**
- Choices:
  - 0=normal
  - 1=25%
  - 2=25-50%
  - 3=>50%
  - Answer: 3

**Severity of Discoloration**
- Choices:
  - 1=discoloration
  - 2=discoloration w/ complications (pain, shiny etc.)
  - Answer: 2

Score = 5

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The Ostomy Skin Tool

**Area of Erosion**
- Choices:
  - 0=normal
  - 1=25%
  - 2=25-50%
  - 3=>50%
  - Answer: 3

**Severity of Erosion**
- Choices:
  - 1=discoloration
  - 2=discoloration w/ complications (pain, shiny etc.)
  - Answer: 2

Score = 5

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The Ostomy Skin Tool

**Area of Tissue Overgrowth**
- Choices:
  - 0=normal
  - 1=25%
  - 2=25-50%
  - 3=>50%
  - Answer: 0

**Severity of Tissue Overgrowth**
- Choices:
  - 1=discoloration
  - 2=discoloration w/ complications (pain, shiny etc.)
  - Answer: 2

Score = 2
The Ostomy Skin Tool

- D (discoloration) score = 5
- E (erosion) score = 5
- T (tissue overgrowth) score = 2

Total DET Score = 8

Peristomal Skin Tool

- Jemec et al. (2011) validation of Ostomy Skin Tool
  - Photos of peristomal skin presented to 20 ostomy nurses and international experts (dermatologists and ostomy nurses)
  - Intra nurse (among the individual nurses) agreement was found to be excellent-reliability
  - Inter nurse (between the nurses) agreement was found to be moderate-validity

Peristomal Skin Assessment
Tools

- Need consistency
- Definitions
- Time frames
- Stoma descriptions
- Valid, reliable tools
- Standardized measurement

Need to know this data to eventually “predict” who will get peristomal skin issues
Risk Assessment
Need to consider stoma descriptions as well

Level of Evidence in Ostomy Care

- Research Based Practice
- Guidelines
- Expert opinion
- Guidelines
- Consensus conference
- Ostomy community support
- Research Based: Complications

Level of Evidence in Ostomy Care: Guidelines

- National Guideline Clearinghouse, Agency for Healthcare Research and Quality (AHRQ)¹
- Wound Ostomy and Continence Nurses Society
  - Management of the Patient with a Fecal Ostomy: Best Practice Guideline for Clinicians (2010)²
- Registered Nurses Association of Ontario
  - Ostomy Care and Management: Best Practice Guidelines (2009)³

¹ http://www.ahrq.gov/clinic/cpgsix.htm
² www.wocn.org
³ http://www.rnao.org
Level of Evidence: Education of the Person with an Ostomy

- Level B and 1A & B Evidence
  - Ostomy education should include a pre and post op component provided by a specialty nurse

- Supportive Research
  - Chaudhri et al. (2005): pre op ostomy education contributes to shorter LOS, higher achievement of self care skills, fewer unplanned outpatient visits for ostomy issues
  - Bass et al. (1997): fewer stoma complications in patients with pre-op education
  - Haugen et al. (2006): adjustment improved when pre op education was provided by a WOC nurse

Recent Supportive Research*

- Provision of pre & post operative stoma management education
- Decrease LOS from 14-8 days


Level of Evidence: Stoma Site Marking

- Level B & 11A Evidence
  - Stoma site marking performed pre op may reduce complications & improve self care

- Supportive Research
  - Qin & Bao-Min: stoma site marking results in lower post op complications
  - Bass et al: fewer post op complications when pre op stoma site marking done
  - Arumugan et al: fewer stomas in folds when pre op stoma site marking done

1ICN and RNAO Guidelines, 2009, 2010
2Qin & Bao-Min, J WCET, 2001, 21, 15
4Arumugan et al. Colorectal Disease, 2003, 5, 49
Level of Evidence: Stoma Site Marking

- WOCN & American Society of Colorectal Surgeons¹ & American Urologic Association²
  - Joint statements on stoma site marking
  - Expert opinion with research support
  - Provide collaborative agreement on this issue

Best Practice: Stoma Site Marking

- Recent Supportive Literature
  - Millan M et al
  - Population: 270 patients undergoing fecal diversion
  - Intervention: seen pre operatively by a stoma therapist (population in Spain)
  - Pre operative education
  - Pre operative stoma site marking
  - Results:
    - Significantly lower rates of stoma complications
    - Patient self reported less anxiety

Level of Evidence: Stoma Site Marking

- Ostomy Community Support
  - United Ostomy Associations of America
    - Ostomate Bill of Rights (1977)
      - The ostomate shall:
        - Be given pre-op counseling
        - Have an appropriate positioned stoma site
        - Have skilled postoperative nursing care
        - Have emotional support
        - Have individual instruction
        - Be informed on the availability of supplies
        - Be provided with information on community resources
Level of Evidence: Stoma Site Marking

- Ostomy Community Support
- International Ostomy Association
- The Charter of Ostomate Rights (1997)
- The ostomate shall:
  - Receive preoperative counseling to ensure...and the essential facts about living with a stoma.
  - Have a well-constructed stoma placed at an appropriate site.
  - Receive experienced and professional medical support and stoma nursing care in the preoperative and postoperative period.

Level of Evidence: Pouching System Wear Time

- Principle: Pouching System Wear Time
  - Predictable time frame in which the pouching system remains sealed while skin integrity remains intact.

Wear Time: Historical Perspective

<table>
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<tr>
<th># of days</th>
<th># of Respondents</th>
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<tr>
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<td>67</td>
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<tr>
<td>1 day</td>
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<td>2 days</td>
<td>252</td>
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<td>3-5 days</td>
<td>499</td>
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<tr>
<td>1-2 weeks</td>
<td>48</td>
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<tr>
<td>&gt; 2 weeks</td>
<td>19</td>
</tr>
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</table>

- Lenneberg & Rowbotham, 1958-62
- Book: The Ileostomy Patient: A Descriptive Study of 1425 Persons
Level of Evidence: Pouching System Wear Time
- WOCN Consensus Session* (2007)
  - Minimum: 3 days
  - Maximum: 7 days
- Dependent upon:
  - Stoma height
  - Stoma location
  - Stoma effluent
  - Peristomal skin
  - Patient ability
  - Access to equipment

*Calwell, Goldberg & Gray, 2007 Ostomy Consensus Session Part One, Salt Lake City

Best Practice: Pouching System Wear Time
- Richbourg et al.*
  - 4.8 days (mean) from data collection from users of ostomy pouching systems
  - Urostomy patients: average wear time of 5.02 days (SD=1.74)
  - Ileostomy patients: average wear time of 5.01 days (SD=2.25)
  - Colostomy patients: average wear time of 4.55 days (SD=2.08)

*Richbourg et al., JWOCN, 2007, 35, 504

Level of Evidence in Ostomy Care: Complications
- Salvadalena*
  - 21 studies from 1990 - 2007
  - Most frequently reported complications:
    - Retraction
    - Necrosis
    - Hernia
    - Prolapse
    - Peristomal skin problems

*Salvadalena, JWOCN, 2008, 35, 596.
Level of Evidence: Ostomy Complications

- Retraction Incidence
  - 22% colostomy & 8% ileostomy by day 10
  - 7% ileostomy by 3 months
  - 3% by 3 months
  - 24% by year 1
  - 0% colostomy or ileostomy by 18 months
  - 13% colostomy & 11% ileostomy by year 2


Level of Evidence Ostomy Complications: Stoma Retraction

- Risk Factors:
  - High body mass index
  - Crohn’s disease (recurrence)\(^1\,^2\)


Level of Evidence Ostomy Complications: Stoma Retraction

- Etiology:
  - Technical problems with stoma construction, (failure to mobilize the bowel adequately)\(^1\), later presentation r/t excessive weight gain\(^1\)
  - Malnourished, obese or steroid dependent patient, poor wound healing\(^2\)
  - Ischemia can produce retraction, & is associated with stenosis\(^3\)

Level of Evidence: Stoma Retraction

- Interventions:
  - Local revision with mobilization of bowel and re-eversion\(^1\)
  - Observation if fecal contamination is not an issue\(^2\)
  - Convex pouching system, with a belt, or a flexible pouching system\(^3\)


Ostomy Complications

- Related to stoma complications
- Reported by surgical groups
- Omits the issues that we see:
  - Loss of peristomal skin
  - Adjustment issues

Conclusion: Challenges and Opportunities

- Challenge of managing the obese patient with a stoma
- Tools for evaluating peristomal skin
- Level of evidence in stoma care
Friends of Ostomates
Worldwide USA

THANK YOU