

## Review

# Stoma and peristomal complications: a rapid overview of the literature

**Citation:** Chirco C., Antonini M. "Stoma and peristomal complications: a rapid overview of the literature" (2023) *infermieristica journal* 2(1): 13-25. DOI: 10.36253/if-2075

**Received:** March 2, 2023

**Revised:** March 16, 2023

**Just accepted online:** April 10, 2023

**Published:** April 30, 2023

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**Data Availability Statement:** All relevant data are within the paper and its Supporting Information files.

**Competing Interests:** The Author(s) declare(s) no conflict of interest.

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**Abstract:** Complications of the stoma complex are estimated to occur in 20-70% of the ostomized population. These studies, however, appear to show contradictions in terms of definitions of the same complications, making the results of the analyses of the incidence and prevalence of the phenomenon inconsistent with each other. The absence of unambiguous definitions does not allow clear evidence to be defined in science; moreover, this is reflected in the absence of a standardized clinical-care approach, which inevitably hinders the spread of an organizational and methodological culture aimed at the wellness and autonomy of the subject.

To overcome this obstacle, different classifications of complications have been proposed throughout the years, differentiating these exclusively into macro-categories, without delving into them in detail. In this regard, this review aims to clearly define the individual complications of the stoma complex to provide nurses with an instrument that can help them in their prevention and recognition.

**Keywords:** Ostomy, Stoma complications, Peristomal complications, Stoma edema, Malpositioning, Malpacking, lesions, Proliferative lesions, Infections, atypia

## Introduction

The presence of complications of the stoma complex is defined by the occurrence of unfortunate events that affect the stoma, mucocutaneous junction, and/or peristomal area, and that makes the management of the ostomy itself difficult or even exacerbate the health status of the subject.

These have been recognized as negative indicators for the health of the ostomy patient<sup>1</sup> and have been categorized in different ways. A study published in 2016, categorized them into surgical, psychological, and social complications<sup>2</sup>; another classification is related to the time of onset so that we can differentiate

early complications, which develop within the first 72h after surgery, and late complications, which occur beyond 72h postoperatively<sup>3</sup>. The WOCN Society has separated stoma complex complications into two groups, stoma and peristomal complications<sup>4</sup>.

Several studies have been conducted over the years regarding the complications of the ostomy complex, mainly related to the risk factors determining these and the incidence of complications in the ostomized population. However, these studies included in the literature show variable results, so the incidence rate of complications varies from 20% to 70%<sup>5,6</sup>, and to date, the risk factors contributing to their occurrence

have not been defined with certainty<sup>7</sup>. Salvadalena G. in 2013<sup>7</sup> and later, Malik et al. in 2018<sup>8</sup>, in their related studies, highlighted the most representative limitations of the studies up to that time submitted literature. Both of them agree on how incoherencies in terms of definitions and measurements of complications represent a major limitation in establishing clear evidence.

In this regard, this review aims to clearly define the complications of the ostomy complex and to provide nurses with an instrument that can help in the prevention, recognition, as well as the correct management of individual complications.

Of the various classifications, the one proposed by the WOCN Society<sup>4</sup>, only considers a few of all possible complications, however, such classification allows us to distinguish the area of interest of the individual complication, emphasizing that: stoma complications concern true alterations of the intestinal tract/extroverted urinary everted which can occur either in the early or late postoperative period; conversely, peristomal complications, concern everything that affects the skin around the stoma, as well as the skin present below the hydrocolloid adhesive, below the skin barrier adhesive, and others the edge of the skin barrier itself (Table 1).

### Complications of the stoma complex





### Part I: Stoma complications






Table 1: Stoma and Peristomal Complications

STOMA COMPLICATIONS	PERISTOMAL COMPLICATIONS	
<b>Stoma Edema</b>		<ul style="list-style-type: none"> <li>• Irritative Contact Dermatitis/ PMASD</li> <li>• Muco-cutaneous Detachment</li> </ul>
<b>Malpositioning</b>	<b>Lesions characterized by loss of substance</b>	<ul style="list-style-type: none"> <li>• Allergic Contact Dermatitis</li> <li>• Trauma Injuries</li> </ul>
<b>Malpacking</b>		<ul style="list-style-type: none"> <li>• Peristomal Ulcers</li> <li>• Peristomal Pyoderma Gangrenosum</li> <li>• Artifact Dermatitis</li> </ul>
<b>Bleeding/ Haemorrhage</b>		
<b>Ischemia and Necrosis</b>		<ul style="list-style-type: none"> <li>• Pseudo-verrucous Lesions               <ul style="list-style-type: none"> <li>- Extraneous body or Stitch Granulomas</li> <li>- Aspecific Fibrin-producing Nodules</li> <li>- Inflammatory Pseudopolyps</li> <li>- Hypergranulation Tissue</li> </ul> </li> </ul>
<b>Retraction</b>	<b>Proliferative Lesions</b>	
<b>Stenosis</b>		
<b>Prolapse</b>		<ul style="list-style-type: none"> <li>• Oxalate Deposits</li> <li>• Neoplasias</li> </ul>
<b>Hernia</b>		
<b>Fistula</b>	<b>Peristomal Sin Infection</b>	<ul style="list-style-type: none"> <li>• Candidosis</li> <li>• Folliculitis</li> <li>• Pseudomonas Aeruginosa</li> </ul>
<b>Trauma</b>		
<b>Inflammatory Pseudopolyps</b>	<b>Pre-existing Skin Disorders</b>	<ul style="list-style-type: none"> <li>• Psoriasis</li> <li>• Eczema</li> <li>• Seborrheic Dermatitis</li> </ul>
<b>STOMA AND PERISTOMAL ATYPIA</b>		
		<ul style="list-style-type: none"> <li>• Peristomal Varices</li> <li>• Clostridium Difficile</li> <li>• Melanosis</li> </ul>

Stoma complications are among the most investigated outcomes in the literature and are uniquely defined by professionals. Among them we include bleeding/hemorrhage, stenosis, retraction, prolapse, ischemia and necrosis, hernia, fistula, trauma, and inflammatory pseudopolyps (Table2). However, other misrecognized and underestimated complications, whose incidence is unknown, should also be mentioned. These complications include edema of the stoma, defined as both early and late complication and, malpositioning and malpacking<sup>39</sup>. These latter ones are closely related to surgery practice and can be effectively prevented by performing an adequate preoperative design and which turn out to be responsible for further stoma and peristomal complications.

Table 2: Stoma Complications

Complications	Incidence (%)	Description
<b>Bleeding/ Hemorrhage</b> 	7.4-14% <sup>10,11,12</sup>	Can be defined as either early or late complications. Blood loss can occur either from the peristomal suture, peristomal bleeding, or from the viscera itself, intra-stomal bleeding. Its occurrence may depend on surgical factors, comorbidities of the subject, or intrinsic factors of the stomal complex.
<b>Ischemia and Necrosis</b> 	0.37-20% <sup>11,13,14</sup>	Most frequently occurs as an early complication related to insufficient arterial supply at the stomal site related to: excessive traction of vessels intraoperatively, mesenteric hematoma, excessive ligation of vessels, making the abdominal wall hole too narrow, excessive use of inotropic substances in the postoperative period. It can be partial, if limited in the first 3-5cm of the emerging portion of the viscera, or total in case it affects the entire intestinal loop. Ischemia and subsequent necrosis of the stoma, however, can also occur late following total prolapse of the ostomy.
<b>Retraction</b> 	3.2-32.2% <sup>12,14,19</sup>	It represents one of the most frequent late complications. It can be defined by the presence of one or more conditions among: the levelling of the stoma below the skin plane; the underlying viscera applies inward tension on the stoma such that it carries the surrounding skin with it. Its occurrence may be related to failure/inadequate eversion of the intestinal loop, malpositioning of the ostomy, excessive mesenteric tension in relation to its length and size, high BMI, or it may occur as a result of healing processes of a previously peristomal complication.
<b>Stenosis</b> 	0.7-15% <sup>6,9,13,15,20-24</sup>	Late complication defined by reduction of the stomal lumen at the peristomal skin or muscular fascia, such that normal effluent leakage is not ensured. It can occur as a result of: inadequate skin and/or fascial incision; preoperative radiotherapy; as an outcome of repeated microtrauma by the ostomy pouching system, suppurative processes or stomal retraction. It is easily associated with the reactivation of systemic inflammatory processes, such as Crohn's Disease.

<p><b>Hernia</b></p> 	<p>2.3-78%<sup>9,25-36</sup></p>	<p>Late complication defined by dislocation of the stomal loop due to failure of the abdominal wall, which occurs as a result of complete or partial detachment of the aponeurotic fascia. If this collects in the subcutis surrounding the ostomy itself, it will be called a peristomal hernia; if the fascia occupies the space lateral to the ostomy, it will be called a parastomal hernia. Among the risk factors contributing to the occurrence of this we have: aging and consequent weakness of abdominal muscles, BMI&gt;25 and high abdominal circumference, BPCO, diabetes mellitus, constipation, intense exertion.</p>
<p><b>Prolapse</b></p> 	<p>2-75%<sup>37</sup></p>	<p>Late complication defined as excessive protrusion of the stomal loop beyond the abdominal skin plane. It can be partial, mucosal prolapse if there is exclusively the sliding of the mucosal tonaca over the muscular tonaca for a maximum of 3-4cm; or total in case there is evagination of the entire loop. Prolapse may be fixed, if the loop is constantly prolapsed, or intermittent if it occurs during the Valsalva Maneuver or as a result of increased intra-abdominal pressure. Generally, prolapse is related to excessive parietal and cutaneous incision width and/or a visceroparietal fixation defect.</p>
<p><b>Fistula</b></p> 	<p>2.3-5.1%<sup>9,12,14,38</sup></p>	<p>Clinically defined as the formation of a neo-pathway that connects two cavities or one cavity with the outside. For the stoma complex, we distinguish: viscerocutaneous fistula, involves the opening of a communication conduit between the lumen of the stomal loop and the abdominal skin; trans-luminal fistula, connects the visceral lumen with the outside, crossing the totality to involve the everted mucosa above the skin plane. The causes by which these occur are many: repeated trans-stomal trauma; outcomes of parastomal abscesses, deep seromuscular sutures, or suppuration of sutures. They occur mainly in individuals with Crohn's disease.</p>
<p><b>Trauma</b></p> 		<p>Injuries caused by traumatic events on the stoma. Stomal trauma may be internal, with perforation of the intestinal loop, which in turn may be intraperitoneal, extraperitoneal, or intramesenteric; or external trauma concerning the tract of viscera protruding from the skin plane. These can result in edema, hemorrhage, and even result in peritonitis due to perforation of the intestinal loop and leakage of fecal material into the abdomen. The main causes that can lead to the establishment of trauma include: perforations due to improper colic irrigation practice; violent stoma-care maneuvers; the application of ostomy belts that are too tight; small plaque orifice diameter.</p>
<p><b>Inflammatory Pseudopolyps</b></p> 		<p>These are hyperplastic, fibrino-proliferative formations with a benign character, localized at the level of the mucosa of the ostomy. In the SACS Classification 2.0 they fall under Proliferative Lesions (LX) that can affect both the peristomal skin and the mucosa of the stoma itself<sup>7</sup>.</p>

### 1.1 Malpositioning

Malpositioning is a condition in which the stoma is packed in a location, in a way that proper management of effluent collection is difficult or even impossible<sup>40</sup>.

This represents one of the most frequent complications of the ostomy complex, which is associated with missed or incorrect preoperative evaluation, packing of the ostomy at the laparotomy wound site or the laparoscope trocar access point, or the packing of the device near osseous protrusions or skin folds.

The presence of a misplaced ostomy affects not only the achievement of the stoma patient autonomy and the realization of its safe appliance but is also responsible for a higher incidence of peristomal skin complications, retractions, and stenosis of the stoma itself (Figure 1).

Figure 1: Malpacking - loop colostomy on rod, packed equal with abdominal skin plane.



### 1.2 Malpacking

Malpacking represents the inadequate execution of surgical technique during the act of ostomy packing, and it is most commonly encountered in cases of loop ostomies on a rod and intimately related to a lack of surgical expertise<sup>40</sup>. Secondary complications related to malpacking include (i) delay in proper intestinal canalization and difficulty in feeding, (ii) increased risk of obstruction and infection due to proliferation of intestinal bacterial flora, (iii) increased risk of dehiscence of the colo-rectal anastomosis, (iv) alterations in the peristomal skin, and (v) worsening of the patient quality of life (Figure 2).

### 1.3 Stoma edema

Stoma edema occurs due to obstruction of venous flow resulting in an increase in the interstitial water component of the stoma. Edema is the most common complication occurring in the early postoperative

period, which generally resolves spontaneously within 6-8 weeks; this represents the main reason for not being considered a true ostomy complication (Figure 2).

However, in rare cases, edema can result in momentary stenosis and paracellular necrosis of the stoma mucosa, especially if the underlying cause persists over time. The final stage can be the onset of mucocutaneous detachment. The most common causes of edema are excessive traction and/or manipulation of the bowel loops, insufficient diameter of the opening on the abdominal wall, fluid stagnation, and plaque opening of a smaller diameter than the stoma itself. When stomal edema occurs in the postoperative period, the presence of other pathological condition should be considered, such as the presence of masses compressing blood vessels, hernia, or ostomy prolapse.

Figure 2: Stoma Edema and Malpositioning - loop ileostomy on rod packing in right iliac fossa, at right iliac crest, on surgical wound. Stoma on postoperative day 5 appears visibly edematous.



## Part II: peristomal complications

Peristomal skin disorders are a major problem affecting about 1/3 of ostomized patients, and more than 2/3 of patients with ileostomies and urostomies<sup>41</sup>. The incidence of these has been estimated between 52-56%<sup>42,43</sup>.

The main cause of these complications is certainly the contact of the skin with the elimination agents from the ostomy<sup>44</sup>, but the peristomal complications that can occur are various and of different nature; in fact, we distinguish lesions characterized by loss of substance, proliferative lesions, infections, and pre-existing skin disorders<sup>45</sup>.

## 2.1 Lesions characterized by loss of substance

They may develop in the immediate or late postoperative period and are associated with surgical defects, intra-operative contamination, a history of chronic diseases, and errors in the equipment of the pouch system. Lesions characterized by loss of substance include (i) irritative contact dermatitis, (ii) mucocutaneous detachment, (iii) allergic contact dermatitis, (iv) peristomal pyoderma gangrenosum, (v) trauma injury, (vi) peristomal ulcer, (vii) artifact dermatitis.

### Irritative contact dermatitis

The most common lesion of this type is irritative contact dermatitis, also called peristomal moisture-associated dermatitis in the Anglo-Saxon literature<sup>46,47</sup>. Having an approximate incidence of 30-40%, irritative contact dermatitis is defined as skin damage caused by prolonged contact between the abdominal skin and feces, urine, or gastric juice, which remain confined to the area of exposure; the lesion is erythematous-edematous with superficial areas of erosion. Erythema of the peristomal skin may evolve into an erosive lesion, which eventually evolves into a true ulcerative lesion if the defect is not corrected promptly. Such lesions are also accompanied by itching and are often associated with a bacterial infection. Irritative contact dermatitis may be related to various causes such as malpositioning or malpacking of the ostomy such that the correct application of the pouch system is not ensured, high-flow ostomies, the use of disinfectants or devices inappropriate for ostomy management, as well as improper positioning of the ostomy system, usually in terms of excessive diameter of the adhesive plaque (Figure 3).

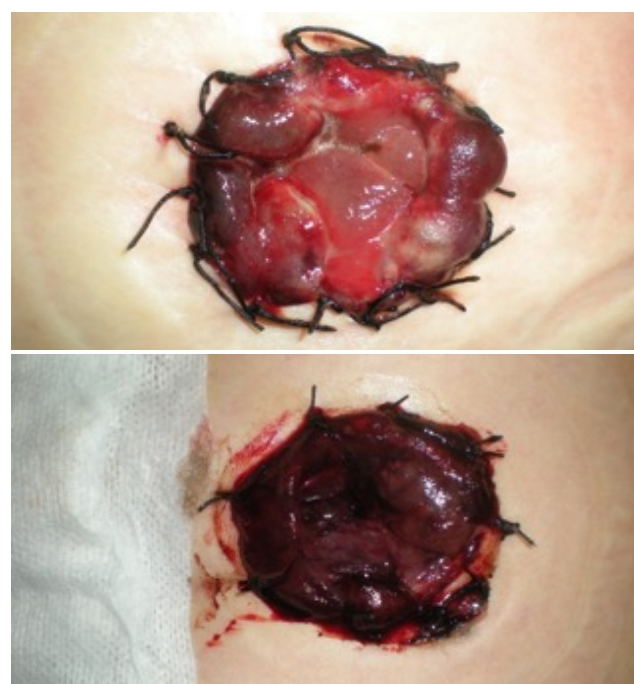
Figure 3: Bleeding - Intrastomal and Peristomal bleeding in lateral ileostomy.



### Mucocutaneous detachment

Next in high incidence among lesions characterized by loss of substance is mucocutaneous detachment or mucocutaneous dehiscence. Their incidence ranges from 15% to 32%, with differences in classification according to early and late complications<sup>11,14,38,48</sup>. It is defined as a separation of the peristomal skin from the intestinal loop that constitutes the stoma. This is a complication occurring within the first weeks of the postoperative period and can be partial, if it involves only part of the peristomal suture, or total if it involves the entire circumference of the stoma. It can be superficial, if it involves only the epidermis, or deep if it also involves the dermis and subcutis. If the detachment goes as far as to involve the muscle fascia, it may induce peritonitis, given the passage of effluent into the abdominal cavity. The presence of detachment can compromise the leakage of the ostomy collection system, therefore favoring the onset of peristomal skin complications. Moreover, healing of mucocutaneous detachment tends to favor scar formation that very often leads to further complications, mainly stenosis and retraction<sup>49</sup>. The occurrence of mucocutaneous detachment is related to several factors, including excessive mucocutaneous suture tension, necrosis of the stoma, diabetes, corticosteroid drugs, malnutrition, immunosuppression due to chemo- or radiotherapy, and chronic inflammatory bowel disease (Figure 4).

Figure 4: Ischemia and Necrosis - Process of ischemia and subsequent necrosis in terminal Sigmoidostomy, occurring during the first postoperative week.



### Allergic contact dermatitis

Allergic contact dermatitis is characterized by skin inflammation related to sensitization against one or more components of the products used for stoma care; this allergic reaction may occur even after several times after the use of the products. The lesion is erythematous-vesicular in type, papular or bullous with undefined margins, and may be accompanied by itching and pain; over time the skin will undergo desquamation and formation of scabs and excoriations. The characteristic of these lesions is that they remain confined to the area of contact and tend to resolve spontaneously when exposure to the allergen is discontinued. In order to make a definite diagnosis of allergic contact dermatitis, the patient needs to have a Patch-test and Prick-test performed in specialized dermatology departments. Precisely because the certain diagnosis of these is medically based, so it is difficult to have certain data, the international literature does not report data on the incidence of this complication; moreover, in a recent Consensus taking place in 2018, allergic dermatitis was included under peristomal complications defined as PMARSI (peristomal medical adhesive-related skin injuries)<sup>50</sup>, and this results in an aggregation of data that does not allow a definition its exact incidence.

### Trauma injuries

Also belonging to PMARSIs are trauma injuries, described as an alteration of skin integrity characterized by erythema and other lesions such as skin tears, erosion, blisters, or vesicles, caused by traumatic events on the peristomal skin, such as adhesives to keep the garment in place for a longer time. The resulting injury may have an erosive character until it evolves into a true ulceration<sup>51</sup>.

### Peristomal ulcer

Decubitus Injury or pressure ulcer is defined as a "localized injury to the skin and/or underlying tissue, usually located on a bone prominence, as a direct result of high or prolonged compression, or shear or stretching forces, resulting in mechanical stress to the tissues and constriction of blood vessels."<sup>52</sup>. In this specific case, decubitus injuries affecting the peristomal skin mostly develop due to friction or pressure injuries related to the pouch system and the type of accessory used (convex plaques, ostomy belts, rigid ostomy rods), which, induce ischemia and necrosis of the underlying tissues as a result of a force applied to the skin. This factor, in addition to excess moisture, causes the rupture of the stratum corneum of the epidermis, maceration, and finally ulceration. Peristomal ulcers may be superficial, (i.e., partial-

thickness of the skin), or deep (i.e., full-thickness of the skin), and should be examined carefully for signs of infection. This complication does not fall into the group of PMARSI, although it is associated with medical equipment (Figure 5).

Figure 5: Retraction, Prolapse, Hernia - A patient with a left terminal colostomy showing a complex picture characterized by: voluminous parastomal hernia, which over time has promoted the onset of mucosal prolapse and stoma retraction.



### Peristomal pyoderma gangrenosum

Peristomal Pyoderma Gangrenosum is clinically defined as a non-infectious neutrophilic dermatosis that originates with the appearance of sterile pustules, progresses rapidly, and evolves into painful ulcerations of variable depth and diameter, the edge of which is irregular and characterized by a violaceous or blue discoloration (Figure 6). This complication is often associated with the presence of recurrent skin ulcerations with mucopurulent or hemorrhagic exudate. It generally occurs in patients with chronic inflammatory intestinal diseases, chronic rheumatologic diseases, and hematologic malignancies. Because the etiology has not been determined, the diagnosis is based on careful proximal and remote pathologic history, in addition to the objective examination, as well as observation of the lesion, the outcome of the histopathologic examination, and the exclusion of other diseases that may present a similar clinical pattern. Data in the literature show that this complication has an incidence ranging from 0.3% to 8%<sup>3,53,55</sup>.

Figure 6: Stenosis -Terminal Sigmoidostomy; the complication in question arises as a result of a process of ischemia and necrosis that, has caused first detachment of the mucocutaneous junction and subsequent retraction of the stoma, and finally, as an outcome of the healing process, stenosis of the same.



### Artifact dermatitis

Artifact Dermatitis is defined by the presence of a self-induced traumatic lesion presenting an atypical distribution and shape, and a chronic course over time. It is an infrequent very delicate condition at the same time for which the patient requires psychiatric consultation.

### 2.2 Proliferative lesions

Over the years, various peristomal skin scales have been proposed to classify proliferative lesions as complications of peristomal skin. The earliest one, proposed in the late 1980s, Classification of Peristomal Skin (CPS), specific for skin changes related to uretero-ileocutaneostomies, exclusively refers to pseudo-verrucous lesions<sup>56</sup>. The Ostomy Skin Tool (OST), among the variables examined, defines the T parameter as tissue accretion/hyperplasia<sup>57</sup>. The Scale for Peristomal Skin Disorders Classification (SACS) classification system proposed in 2006<sup>58</sup>, and the subsequent revision that led to the introduction of the SACS Scale 2.0 in 2016<sup>59</sup>, define LX proliferative lesions, the appearance of abnormal outgrowths such as hyperplasia, granulomas, oxalate deposits, and neoplasms. Finally, among the most recent




classification tools, the Peristomal Lesion Scale (PLS), proposed in 2017 by the National AIOSS Association, identifies in variable A, accretionary skin alteration, all proliferative lesions without distinction<sup>60</sup>.

Beyond the citations on this type of complication, there are no significant publications in the international literature regarding both incidence and etiopathogenesis. This group of lesions appears to include the following:

- Pseudo-verrucous lesions: also referred to by the terms chronic papillomatous dermatitis and/or pseudoepitheliomatous hyperplasia, are hyperplasias of the epidermis characterized by the excessive growth of tissue caused by exposure of the skin to an irritant agent, such that they generate first hyperkeratosis and later, acanthosis. These are fibrin-productive formations of a benign nature, which can appear either on the peristomal skin or the mucosa of the ostomy. Hyperkeratotic lesions can cause stenosis of the ostomy, to the point that they require a surgical intervention. Among pseudo-verrucous lesions, several forms are distinguished, which are described in Table.3.
- Oxalate deposits: defined by the presence of white crystals on the peristomal skin and stoma; formation of these crystals is facilitated by the excretion of alkaline, concentrated urine or the presence of urinary tract infection.
- Neoplasias: true neoplastic masses that form at the base of the stoma or in the peristomal region, after inadequate resections of the primary cancer or following recurrence of the disease, or still be the outcome of non-malignant disease such as a chronic peristomal inflammatory process. Such lesions are characterized by uncontrolled development, ease of bleeding, and absence of pain; in some cases, they may present with the appearance of ulcers with a turbid background that does not regress with usual treatment. The diagnosis of neoplasia is always conducted using biopsy sampling of the lesions.



Table 3: Peristomal complications – Pseudo-verrucous lesions

<b>Extraneous body or stitch granulomas</b>	<b>Aspecific fibrin-producing nodules</b>	<b>Inflammatory pseudopolypes</b>	<b>Exuberant granulation or hypergranulation tissue</b>
			
<p>They mainly form on the muco-cutaneous junction as a consequence of a chronic inflammatory reaction and, are characterized by nodular neoformations with concentric microscopic structure that are easily bleeding and painful.</p>	<p>Found most frequently at the level of the hemi-circumference of the muco-cutaneous junction, they occur as a result of chronic tissue irritation from continuous contact of effluent with peristomal skin.</p>	<p>Can be classified as either stomal or peristomal complications. These are fibrino-proliferative formations that occur as a result of trauma to the stomal mucosa most commonly.</p>	<p>Represents an outgrowth of red, friable, shiny, easily bleeding tissue that extends beyond the margins of the lesion, above the surrounding skin tissue.</p>

### 2.3 Peristomal skin infections

- **Candidosis:** defined by the presence of lush vegetation of microorganisms belonging to the *Candida* family, in sufficient quantity to cause inflammation, infection, and disease of the skin on the peristomal area. Excessive overgrowth of it is typically promoted by a humid setting, typical of that between the pouch system and the peristomal skin, heat, antibiotic, and chemotherapeutic treatments. Such conditions promote the occurrence of itchy erythematous lesions with irregular borders associated with satellite pustulosis.
- **Folliculitis:** linked to *Staphylococcus Aureus* infection of one or more follicles causing inflammation and the development of erythematous-pustular lesions. It occurs following frequent shaving and/or changing of pouch systems, and risk factors for the onset of these include diabetes mellitus, malnutrition, immunodeficiency, chronic *Staphylococcal* infections, and obesity.
- ***Pseudomonas aeruginosa*:** Organism present in the bowel that, under special conditions, can colonize and infect wounds and ulcers, most frequently in diabetic subjects or those with a poor general clinical condition. Lesions caused by this appear erythematous-edematous in character accompanied by the presence of pustules at the edges of the lesion.

### 2.4 Pre-existing skin disorders

- **Psoriasis:** a hyperproliferative skin disease, benign

in nature, characterized by well-defined, silvery-white erythematous-squamous plaques. The patient with this pathology will present under and around the pouch system, what is called "Koebner's phenomenon" or Koebner's reactive isomorphism, as well as the occurrence of new lesions typical of the disease on previously healthy skin areas subjected to mechanical trauma of various kinds, such as what may be represented by frequent replacement of the pouch system.

- **Eczema:** linked to an underlying inflammatory process that probably arises from contact with a specific agent, it presents as dermatitis characterized by profuse exudate and blister formation, accompanied by itching and redness, which may desquamate or form scabs on their surface. Sometimes, if these become chronic, they tend to form true rhagades.
- **Seborrheic dermatitis:** an eczematous process that follows a characteristic pattern of body distribution; in fact, the impacted areas are the scalp, face, chest, and skin folds, the etiology of which is unknown and probably immunologically based. The resulting lesion is characterized by a typical erythematous rash, accompanied by yellowish, greasy squamas.

### Part III: Stoma and peristomal atypies

Discussion of some rare stoma and peristomal complications is necessary for this review since the international literature has reported scarce information. These have been referred to as

"atypical" because they cannot be classified, but their knowledge is necessary to prevent the occurrence of further complications or, distinguish them from other complications listed above that may have a similar presentation. These include:

- Melanosis: a condition in which the intestine appears black/brownish in discoloration related to the retention of protein and lipid substances within the macrophages that populate the walls of the intestinal tract, as a result of excessive use of anthraquinone-type laxatives. It turns out to be important, if not essential, to be able to differentiate this from stoma ischemia/necrosis (Figure 7).
- Clostridium difficile: anaerobic, Gram-positive bacterium, physiologically present in the intestinal and vaginal bacterial flora, whose colonization and proliferation are promoted by exposure of the bacterial flora to antibiotics. At the intestinal level, this causes what is called "pseudomembranous colitis," which manifests with raised yellowish-white plaques on the colic mucosa while the mucosal areas interposed between the plaques appear relatively normal. Clinical patterns can be quite heterogeneous starting from completely asymptomatic forms, intermediate forms with fever, diarrhea, and abdominal pain, to extremely severe forms of colitis such as those known under the term "Clostridium difficile fulminant colitis".
- Peristomal varices: lesions forming when the cutaneous portosystemic collateral circles are activated, eventually leading to the formation of a peristomal vascular plexus which over time forms a caput medusae. Peristomal varices are rare complications, but their bleeding can be significant and difficult to manage (Figure 8).

Figure 7: Fistula - Terminal ileostomy characterized by the presence of trans-stomal fistula.



Figure 8: Trauma - External stoma trauma determined by excessively small diameter of the pouch system plaque, such that it results in ulceration of the stoma mucosa.



### Conclusion

Complications of the ostomy complex represent a limitation in the lifestyle re-adaptation process of the ostomy patient. Knowing how to define, recognize and subsequently treat individual complications, requires a multidisciplinary and interdisciplinary approach where knowledge in the fields of medical-surgical, wound care, and stomatherapy meet in order to place the ostomy patient at the center of an integrated system, to guide him or her along a process of autonomy and physical, psychological and social wellness.

Thereby, making the definitions of the various complications standardized turns out to be necessary to bring further progress in the field of nursing research in this area, as well as to facilitate the management of "difficult ostomies".

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