Infectio® Surgery

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Current News

FDA Approves Shockwave's Lithoplasty System for Peripheral Artery Disease (September 16, 2016)

FREMONT, CA — The US Food and Drug Administration has approved Shockwave Medical's Lithoplasty System as treatment for calcified plaque in patients with peripheral artery disease.

The Lithoplasty System integrates two technologies, sound waves (lithotripsy) and angioplasty balloon catheters, to target hardened calcium in patients with cardiovascular disease. Lithotripsy pulses disrupt superficial and deep vascular calcium but minimize injury to soft tissue. Then an angioplasty balloon restores blood flow at low pressures.

The FDA approval is based on data from the DISRUPT PAD study, which the company says demonstrated the Lithoplasty System's safety and effectiveness in all patient subgroups in increasing blood flow in treated vessels.

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Preoperative Localization of Parathyroid Adenoma in Relation to Cost and Efficacy

Summarized by:
Dr. Naeem Khan Consultant Surgeon
JPMC, Karachi

Introduction

Traditional surgical management of spontaneous primary hyperparathyroidism (SPHPT) consists of a 4-gland cervical exploration. Development of imaging specific to identification of parathyroid glands and application of the rapid PTH assay to operative management have made more minimal exploration possible.

Bilateral neck exploration (BNE) has a success rate ranging from 94% to 98% when performed by experienced surgeons, however, minimally invasive parathyroidectomy (MIP) with its advantages of smaller incisions, lesser dissection, eligibility for outpatient surgery, and cost savings has become the preferred surgical approach to SPHPT.

To achieve results parallel to those of BNE, MIP has required advances in preoperative imaging and development of intraoperative adjuncts. Development of imaging studies guide the surgeon to identification of precise location of abnormal parathyroid gland and allows a focused approach whereas application of the intraoperative rapid PTH assay assures the surgeon that all the hyperfunctioning tissue has been removed.

Most commonly used methods of localization are a combination of ultrasonography (US) and technetium 99m (Tc 99m) sestamibi scintigraphy (MIBI). Four dimensional computed tomography (4DCT), which was initially reserved for reoperative cases, is now being used by some surgeons as the primary localization study. This review focuses on the most commonly used localization studies in SPHPT and emphasizes their clinical effectiveness and cost effectiveness.

Superior parathyroid anatomic and imaging location

The superior parathyroids are usually located in a posterior plane when compared with the inferior gland. The possible location of the superior parathyroid is posterior to the midportion of the superior thyroid lobe near the cricothyroid junction (>90%), posterior to the midthyroid lobe (4%), superior to the thyroid lobe (3%), in the retropharyngeal/ retroesophageal location (1%), or intrathyroidal (0.2%). A superior gland that has fallen down because of growth and gravity into the tracheoesophageal groove or paraesophageal area can be imaged in a relatively low cervical location and misinterpreted as an inferior gland by an inexperienced radiologist or surgeon. One of the most common locations of a missed parathyroid during a previous failed parathyroidectomy is a superior gland in the posterior and low paraesophageal area. The posterior location of the superior gland can be confirmed on US, CT or single-photon emission computed tomography (SPECT) MIBI images, or the oblique images of a planar MIBI scan. A retropharyngeal/ retroesophageal superior gland may not be apparent on US, and 4DCT and MIBI with SPECT or MIBI-SPECT/ CT are more suitable for these locations. An intrathyroidal parathyroid gland can be localized with MIBI scans; however, US is ideal in assisting the surgeon to determine if the abnormality is parathyroid tissue.

Inferior parathyroid anatomy and imaging location

The possible locations of the inferior parathyroid are caudad, posterior or lateral to the lower thyroid pole (69%), in the thyrothymic ligament or thymic tongue (26%), superior to the superior parathyroid gland as an undescended inferior parathyroid, in the mediastinal thymus or in the mediastinum outside the thymus (2%). An inferior gland is usually located in a lower and generally more anterior cervical location when compared to the superior gland. Often it protrudes out of the lower pole of thr thyroid. A rare deep mediastinal parathyroid is impossible to image with US, but can be detected by 4DCT and SPECT MIBI or SPECT/CT MIBI.

US

All patients with hyperparathyroidism should have a surgeon performed US or a radiologist performed US to localize the gland as it is convenient, does not involve radiation exposure, is non-invasive, provides the surgeon with excellent detailed topographic

information, identifies concomitant thyroid disease, and is the best least costly localization method. It can also frequently identify an intrathyroid or cystic parathyroid gland which is not easily identified by other modalities. Furthermore, US can be used to guide fine-needle aspiration (FNA) of intrathyroid lesions when parathyroid origin is unclear, but FNA should only be used when absolutely necessary as it creates a local inflammatory reaction, making the operation more challenging.

Typical US appearance and location of parathyroid adenomas

On gray-scale imaging, parathyroid adenomas are nearly always homogenous and hypoechoic when compared with the thyroid. They are solid, bean-shaped or oval with smooth borders. There is an arc or rim of peripheral vascularity formed by polar vessels.

In most patients, the 3 most common location sof inferior parathyroid can be imaged by US. Ultrasonographers should always scan posterior to the clavicle by angling the US probe under it and asking the patient to swallow. This maneuver is helpful in localization of thymic or thoracic inlet parathyroid glands. When US fails to show an abnormal parathyroid in its eutopic location, the lateral neck, particularly the area medial to the carotid artery (level II lymph node basin) should be carefully scanned, looking for a rare ectopic or undescended gland.

The location of superior parathyroid is less variable, yet its posterior position can be challenging to visualize with US, particularly in obese patients, those with goiters, or in the presence of thyroiditis.

Accuracy of US

The results of US are operator dependent and can be negatively influenced by the presence of throid nodular disease, increased body mass index, presence of multiglandular/ ectopic parathyroid disease, and small parathyroid size. Posterior thyroid nodules and cysts can be mistaken for a parathyroid adenoma and vice versa. US is less sensitive when parathyroids are located behind the trachea, esophagus, in the superior mediastinum, and in patients with thyroiditis. US has its own limitations even when performed by an expert, therefore surgeons should evaluate their institutional results before relying exclusively on this imaging method.

Cost-effectiveness of US

When compared to the cost-utility ratio of the other 4 localization strategies : (1) MIBI-SPECT; (2) 4DCT; (3) MIBI-SPECT and US; (4) MIBI-SPECT and US +_ 4DCT,US is the least expensive imaging modality. However, the most cost-effective strategy involved the use of US combined with MIBI-SPECT and, if needed, 4DCT. This strategy costs less and accured more utility mostly because BNE was avoided, hence decreasing the overall cost of parathyroidectomy. Using MIBI-SPECT as the only localizing study was the least cost-effective strategy.

The cost of BNE without localization is always higher, even when the sensitivity of localization studies as lowest. Most cost-effectiveness studies assume that most patients undergoing BNE require longer operating time and overnight stays in the hospital, therefore driving the cost of parathyroidectomies higher.

MIBI

Sestamibi parathyroid scintigraphy is the most widely used preoperative localization technique. They are more sensitive and less operator dependent when compared with US. Its performance is dependent on the imaging technique used, the weight and size of parathyroid gland, and who is interpreting the images. Hyperactive parathyroid adenomas uptake and retain the sestamibi isotope for longer period when compared with the thyroid gland. Dual-phase imaging consisting of early (5 or 15 minutes) and delayed phase (2hours) images helps the sestamibi isotope to wash out from thyroid, enhancing the detection of parathyroid adenomas in the delayed phase images (2 hours).

Multiple imaging techniques have been described which can vary in the timing: single or dual phase, and extent of imaging: planar, oblique views, three-dimensional images with SPECT or fusion of SPECT with CT images. The MIBI planar images can also be fused with thyroid imaging with Tc 99m-pertechnetate or 123I- sodium iodide. The thyroid can then be subtracted from MIBI images using computer techniques, therefore providing potentionally better visualization of the hyperfunctioning parathyroid gland.

Choosing the appropriate scintigraphy study

- Multiplanar MIBI-SPECT- based imaging offers 3D localization and improves detection when compared with planar scans. (Sharma and colleagues)
- Subtraction techniques are not superior to non-subtracted techniques in localizing abnormal parathyroid glands. (Sharma and colleagues)
- Reading all MIBI images together is more accurate than reading early, late, subtraction and MIBI-SPECT images separately. (Nichols and colleagues)
- The reading of MIBI images is significantly affected by gland weight. (Nichols and colleagues)

It seems that the contribution of SPECT/CT over and above SPECT alone is greatest in terms of localization when the abnormal gland is ectopic. The role of SPECT/CT in eutopic tumors remains controversial, given their extra imaging time and radiation exposure. Joint reporting and reading of MIBI scans by the radiologist and surgeon have been shown to significantly improve localization rates.

Accuracy and cost-effectiveness of scintigraphy

A meta-analysis from Ruda and colleagues reported a sensitivity of 88% for MIBI scans, whereas Gotthardt and colleagues described a sensitivity of 45%. This difference in sensitivities can be explained by the definitions of what constitutes a true positive result and who is interpreting the images.

Using MIBI scans alone is the most costly localization strategy. The only other strategy more costly than this is performing a BNE without using preoperative localization studies.

4DCT

4DCT is a multiphase multidetector CT similar to CT angiography. Multidetector CT provides rapid volumetric acquisition and spatial resolution of 1mm or better, allowing exquisitely detailed images of the cervical area and parathyroid glands. It is a 3D CT scan with an added dimension from the changes in perfusion of contrast over time. It provides both anatomic and functional information, therefore overcomes the limitations of US and MIBI scan, both of which can miss deep-seated glands or may fail to provide clear anatomic resolution.

Accuracy of 4DCT

4DCT have greater sensitivity (88%) when compared with US (57%) and MIBI-SPECT/ CT (65%). It is also superior in not only lateralizing the parathyroid to 1 side of the neck but also to pinpoint their superior or inferior location. It is also better than other modalities in patients with larger glands and with multiglandular disease.

Cost-effectiveness of 4DCT

4DCT is cost-effective when US is negative or when the combination of US and MIBI scan is negative or discordant. This cost-effectiveness is due to avoidance of BNE which is associated with longer operative times and hospital stays. The cost of 4DCT is higher than US and MIBI scan alone, therefore it should be used selectively in cases in which US and MIBI scans are negative/ equivocal or have limitations because of patient disease.

Disadvantages of 4DCT

- Increased radiation exposure (57 times higher when compared to MIBI scans, increasing the risk of 4DCT- related thyroid cancer of 0.1%)

- Need for iodinated contrast injection (limits its use in patients with renal failure or contrast allergy)

Differential Jugular Venous Sampling (DJVS)

In this procedure, the surgeon uses US to guide the internal jugular venous sampling as low in the neck as possible. Whole blood is collected from each internal jugular vein and sent to the laboratory for PTH measurement. If the jugular venous PTH level on 1 side of neck is 10% higher than the opposite side, DJVS is considered positive. This test is correct in lateralizing the abnormal parathyroid glands in 71% to 81% of the patients and has been suggested to be suitable as the second localization study when SUS is equivocal or negative.

Conclusion

Most parathyroid surgeons use localization studies and perform focused, directed, or minimally invasive parathyroidectomies. Moreover, even surgeons performing routine BNE almost always use localization studies. Regardless of which parathyroidectomy approach is planned, we believe that all patients should undergo preoperative US, not only to localize abnormal parathyroid gland but also to properly address the frequently coexisting thyroid disease. Drawing from our own experience and from reviewing the literature, US is the least expensive localization study in patients with SPHPT. When the surgeon can rely on accurate and clear US results to localize the parathyroid gland, they should proceed with parathyroidectomy solely guided by the US results and intraoperative PTH. When the parathyroid gland is not clearly identified or the images are equivocal, an additional study such as MIBI scan, 4DCT, or office-based US-guided DJVS should be obtained.

In our clinical routine, patients with negative or equivocal studies (US and MIBI scans) do not routinely undergo 4DCT. Instead 4DCT is used selectively for reoperative or difficult cases. Even when the image studies are read as negative, the surgeons' review of the images could give a clue as to where to start the exploration. The side of the neck most likely to contain the abnormal parathyroid is explored first, and if a large gland is found, with the help of IPM, unilateral neck exploration is possible in most patients. BNE is performed when multiglandular disease is suspected, no dominant gland is found on the initially explored side of the neck, or when the intraoperative PTH levels fail to drop after excision of a clearly abnormal gland (multiple gland disease).

Although the abnormal parathyroid gland can often be localized by US, many patients referred for surgical evaluation have already had 1 or more usually negative MIBI scans. To contain cost and improve patient management, the parathyroid surgeon, not the primary care physician or endocrinologist, should determine which localization study is best suited and has the best sensitivity in their local environment. Furthermore, localization studies should never be used to select patients for surgical referral. Collaboration with the referring physicians is important to establish the best algorithm for parathyroid localization and improve cost-effectiveness.

Reference: Clinics of North America

Gastroesophageal Reflux Disease After Bariatric Procedures

Summarized by:
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Introduction

Around the world obesity has reached to epidemic proportions. In United States 35% of adults are considered obese. With number of obese individuals increasing, there is an increase in the number of weight loss surgeries being performed. Gastroesophageal reflux disease (GERD) remains an important topic of consideration, among different comorbidities and complications after weight loss surgery.

Gastroesophageal Reflux Disease

Pathologic findings produced by stomach contents flowing backward into the esophagus or beyond is GERD. Prevalence of GERD is between 10% and 20% in western population. Lower esophageal sphincter (LES) dysfunction is commonly described as pathogenic pathway, LES prevents reflux of gastric contents into the esophagus.

Gastroesophageal Reflux Disease And Obesity

In United States more than one-third of adult population is considered obese. Potential risk factor for reflux disease is obesity. A directly dependent relationship has been reported because an increase in body mass index has mirrored an increase on risk of GERD. The incidence of reflux in the obese population is 61%. Variety of bariatric procedures is increasing due to increase number of obese patients. The effect of bariatric surgery on preexisting GERD or newly developed GERD differs by procedures.

Gastroesophageal Reflux Disease After Sleeve Gastrectomy

Sleeve gastrectomy (SG), is a relatively new treatment alternative for morbid obesity, which is described as a first stage of biliopancreatic diversion. Although it has many positive effects on obesity and obesity related comorbidities, the association between GERD and SG remains controversial. The International Sleeve Gastrectomy Expert Panel reported a postoperative rate of GERD symptoms after SG in up to 31%, however, others cited increased GERD prevalence after surgery between 2.1 and 34.9%.

Studies Showing An Increase in GERD After Sleeve Gastrectomy

several studies have shown an increase of GERD after Sleeve gastrectomy. Tai and colleagues concluded that there was a significant increase in prevalence of GERD symptoms and erosive esophagitis ($P<0.001$), along with a significant increase in the prevalence of hiatal hernias ($P<0.001$) which was higher in erosive esophagitis developed after LSG. Himpens and colleagues compared adjustable gastric banding and SG at 2 and 3 years after procedures. Denovo GERD was seen after 1 year 8.8% and 21.8% of patients with AGB and SG respectively. Lazoura and colleagues showed that the final shape of the sleeve can influence the development of GERD and that patients with tubular pattern and inferior pouch did better compared with a tubular sleeve with a superior pouch. Daes and colleagues concentrated on standardizing the procedure to reduce GERD symptoms and identified 4 technical errors leading to its development. Careful attention to surgical technique and concomitant repair of hiatal hernia in all patients reduces the rate of postoperative GERD to only 1.5%. They concluded that hiatal hernia is most important predisposing factor.

Studies Showing Reduction in GERD After Sleeve Gastrectomy

Interestingly some studies showed GERD improvement. Rawlens and colleagues reported an improvement of symptoms in 53% of patients, but denovo GERD in 16% of patients. Sharma and colleagues also reported an improvement of GERD as well as improvement in grade of esophagitis on endoscopy. Mechanism of GERD improvement postoperatively are gastric emptying, reduction in gastric reservoir function, GI hormonal modifications, decrease in acid secretion and decrease in weight.

Presentation Of Post Procedure Reflux Disease

Symptoms include heart burn, chest pain, regurgitation, nausea and coughing. In post bariatric patients the GERD symptoms can mask other post-operative complications. GERD is treated initially

by clinical diagnosis on the basis of history and physical evaluation. Sleeve patients can also experience reflux with herniation, stricture, kinking or dysmotility.

Diagnosis

Several tests can aid in diagnosis of GERD for e.g, 24-hours pH monitoring upper GI endoscopy and manometry. Of which 24 hours pH study is gold standard. Barium esophogram may detect hiatal hernia and outlet problem.

Treatment

Proton pump inhibitors are first line medications. Promotility agents can be used. If symptoms persist surgery can be considered.

Available Procedures

Patients with newly developed GERD symptoms after RYGB may have possibilities. Revision of bypass is a possibility to lengthen Roux limb. Few surgeons have proposed fundoplication using bypass stomach.

Summary

GERD is a significant comorbidity in bariatric patients pre and post operatively. The surgeons should be aware of appropriate evaluation. Procedure choices, management options and patient selection.

Winners of Lucky Draw

Reported by: **Dr. Nabeel Khan**

The editorial board of Infectio Surgery magazine is pleased to announce the names of winners for quiz from the first edition. The lucky draw was held in a clinical meeting at JPMC, Karachi on 23rd September 2016. Following are the names of lucky draw winners drawn at randomly by Associate Professor Salim Soomro and his team.

We congratulate the winners and once again thank all contestants for their participation in quiz

1. **Prof. Khalid Javeed Khan, Professor, Surgical Unit-3, Sir Ganga Ram Hospital, Lahore**
2. **Col. Tahir Iqbal, HOD Surgery, CMH, Abbottabad**
3. **Dr. M Saleem Shaikh, Associate Professor, Surgical Unit-3, Chandka Medical College**
4. **Dr. Saeed Rabbani, Senior Consultant, Civil Hospital, Multan**
5. **Dr. Hira Zahid, House Officer, Surgery, Holy Family Hospital, Rawalpindi**

Combination of Lapatinib and Trastuzumab shrinks HER2 positive Breast Cancer Significantly in 11 Days After Diagnosis

Summarized by:
Dr. Salim Ahmed Soomro Associate Professor of Surgery, JPMC, Karachi

Summary

Approximately a quarter of women with HER2 positive breast cancer, who were treated with a combination of the targeted drugs lapatinib and trastuzumab before surgery and chemotherapy, saw their tumors shrink significantly or even disappear, according to results from a clinical trial.

Professor Nigel Bundred told the 10th European Breast Cancer Conference (EBCC-10): "This has ground-breaking potential because it allows us to identify a group of patients who, within 11 days, have had their tumors disappear with anti-HER2 therapy alone and who potentially may not require subsequent chemotherapy. This offers the opportunity to tailor treatment for each individual woman." Prof Bundred, who is Professor of Surgical Oncology at The University of Manchester and the University Hospital of South Manchester NHS Foundation Trust (UK), was presenting results from the UK EPHOS-B multi-centre, clinical trial, in which 257 women with newly-diagnosed, operable, HER2 positive disease were recruited between November 2010 and September 2015.

The trial had two parts; in part one, 130 women were randomised to receive no pre-operative treatment (the control group), or trastuzumab only, or lapatinib only, for 11 days after diagnosis and before surgery. However, as evidence emerged from other trials of the efficacy of the combination of lapatinib and trastuzumab to treat HER2 positive breast cancer in other settings, the second part of the trial was amended so that, from August 2013, the next 127 women were randomized to the control group, or to receive trastuzumab only, or the combination treatment. For both parts of the trial, the women continued to receive standard of care treatment after surgery.

Samples of tumor tissue were taken from the first biopsy, which had been used to confirm the cancer diagnosis, and then again during surgery. The samples were analyzed to see if there had been a drop in levels of the Ki67 protein, an indicator of cell proliferation, or a rise in apoptosis (programmed cell death) of 30% or more from the time of the first biopsy. In addition, investigators reviewed the pathology reports on the tissue taken during surgery, and the women were then categorized as either having pathological complete response (pCR) if no active cancer cells had been found, minimal residual disease (MRD) if the tumor was less than 5mm in diameter, or other.

Results from the second part of the trial, analysed in February 2016, showed that, in addition to observing a drop in Ki67, for women who received the combination treatment 11% had pCR and 17% had MRD. For those women randomized to receive only trastuzumab, 0% had pCR and 3% had MRD and no patients had either pCR or MRD in the control group.

Date: March 10, 2016
Source: The European Cancer Organization (ECCO)

Squamous Cell Carcinoma of Breast: A Case Report

Summarized by:
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Abstract

Squamous cell carcinoma of the breast is thought to arise through metaplasia of ductal carcinoma cells. We report a case of pure squamous cell carcinoma of the breast in a 70 years old female patient. Extensive literature review has been done to discuss the clinical and radiologic features as well as management of this rare lesion.

Introduction

Pure or primary squamous cell carcinoma (SCC) of the breast is a rare entity, included in metaplastic breast cancer with an unclear pathogenicity and aggressive behavior, clinical and radiological appearances are not specific, nodal involvement is rare and hormones receptors are negative. The treatment is based in surgery associated with radiation therapy and chemotherapy. Prognosis seems to be similar to other breast carcinomas the rarity of the condition make it difficult to draw firm conclusion on the course of the disease and the overall prognosis.

Case Report

We report a case of pure primary SCC of the breast occurring in a 70 years old woman admitted to our ward with the history of Right breast lump, physical examination revealed 4/4cm firm, rubbery, non-tender and mobile lesion in right breast, no axillary findings were noted. Mediolateral and craniocaudal mammograms of the right breast revealed a round, high-density mass, which had mostly regular but partially irregular margins, the skin and the nipple-areola complex were not involved and no micro calcifications were seen. Ultrasonography demonstrated a solid tumor with an irregular shape. Trucut biopsy specimen demonstrated a typical keratinocytes in different sizes with narrow eosionphilic cytoplasm and moderate mitotic activity, giving suspicious of malignancy, so after fitness for general anaesthesia patient underwent modified radical mastectomy (MRM), axillary lymph nodes were enlarged. Histolopathology showed moderately differentiated infiltrating squamous cell carcinoma of breast, one out of twenty one recovered lymph nodes was positive for tumor cells. According to TNM classification it is T2.NI.M0. Pt received radiotherapy and now she is on yearly follow up.

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Case Study

Summarized by:
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Abstract

- Necrotizing fasciitis (NF) is a rare, life-threatening, soft-tissue infection characterized by rapidly spreading inflammation and necrosis of the skin, subcutaneous fat, and fascia. Synonymous with flesh-eating bacteria syndrome, streptococcal gangrene, Meleney's gangrene, acute dermal gangrene, hospital gangrene, synergistic necrotizing cellulitis, Fournier's gangrene, suppurative fasciitis. 3 times more common in males of all age groups. Mortality rate ranges from 6% to76%. It is classified as follow.

Classification of responsible pathogens according to type of infections

Microbiological type	Pathogens	Site of Infections	Co-morbidities
Type 1 (polymicrobioal)	Obligate and facultative anaerobes	Trunk and perineum	Diabetes mellitus
Type II (monomicrobial)	Beta-hemolyric streptococcus A	Limbs	
Type III	Clostridium species Vibrios spp. Aeromonas hydrophila	Limbs, trunk, and perineum	Trauma Seafood consumption (for Aeronomas)
Type IV	Candida spp. Zygomycetes	Limbs, trunk, perineum	Immunosuppression

- It is most common in immunocompromised states (Diabetes mellitus(most common)56% , Alcohol abuse, Immunodeficiency, Liver cirrhosis). Other causes include Obesity, Chronic renal failure, Hypertension, Peripheral vascular disease, Age above 60 years.
- The Laboratory Risk Indicator for Necrotizing Fasciitis (LRINEC) score is used to distinguish between cellulitis to the likelihood of necrotizing fasciitis being present in it .
- LRINEC score > 6 indicates that necrotizing fasciitis should be seriously considered.
- LRINEC < 6 does not completely rule out the diagnosis. Diagnoses of severe cellulitis or abscess should also be considered.
- The scoring criteria are as follows:

LRINEC Score

Variable	Result	Score
C-reactive protein (mg/L)	<150 ≥150	0 4
White blood cell count (x 10^9/L)	<15 15-25	0 1
Hemoglobin (g/dL)	>13.5 11-13.5 <11	1 2 0
Sodium (mmol/L)	≥135 <135	0 2
Creatinine (mcg/L)	≥ 141 > 141	0 2
Glucose (mmol/L)	≤10 >10	0 1

LRINEC: Laboratory Risk Indicator for Necrotizing Fasciitis Score: References 1,2.

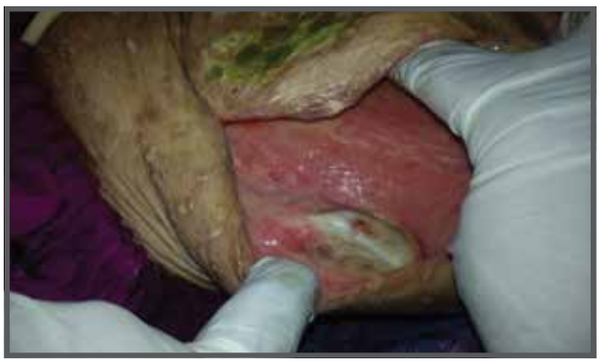
- Treatment is resuscitate, Broad spectrum antibiotics, Repeated debridement every 24 to 48 hours till infection is controlled. Postoperative wound management consists of serial dressing changes, until the wound becomes free of recurrent or progressive skin and soft tissue necrosis wound is washed and dressed with occlusive, adsorptive bandages with antiseptic daily antibiotic dressings two to three times.

Case Report

A 52 year old, diabetic female presented to our emergency department with a 20 days history of dull, diffuse right sided abdominal pain associated with nausea and diarrhea. She underwent a uncomplicated open cholecystectomy 2 week prior in outside hospital on examination she was tachycardia with pulse of 100b/min. Wound was draining pus. Ultrasound shows 10ml collection in gall bladder fossa. CT SCAN abdomen showed abscess in anterior abdominal wall and diagnosis of necrotizing fasciitis was made incision and drainage showed 500 ml of pus . Culture and sensitivity showed morganella, acinitobacter, coagulase negative staph aureus all sensitive to salbatum and cefoperazone. Wound washing and dressings were done for 2 months. wound was closed and parenteral nutrition was given to patient.

Wound before washing and dressing

Wound after washing and dressing



Quiz

Question:

This man has a painful swollen leg with a palpable foot pulse. What is the diagnosis?