Infectio® Surgery
A Quarterly Magazine

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Current News

Colorectal cancer vaccine has promising results in early trials

A clinical trial shows promise for a new vaccine for colorectal cancer, as it caused no serious side effects while bloodwork demonstrated immune cell activation and its result published in the Journal for Immuno Therapy of Cancer (phase 1 clinical trial)

The trial set out to establish if the vaccine was safe and whether it activated immune cells; both aspects were satisfactory. This success carried the way for further study. A research team from Philadelphia University and Thomas Jefferson University (United States) is the developer of the vaccine and that group's latest work has involved 10 individuals who had stage 1 or 2 colon cancer. After administration, the blood samples showed evidence of killer T cell activation, a process that causes the T cells to find and destroy colon cancer cells. They were also interested in the potential side effects of the vaccine, and yet not reported any serious eventThis vaccine works by mobilizing the immune system against a specific molecule called GUCY2C. Researcher discovered that this molecule is a marker that colorectal tumors express and helps these cancer cells stand out from healthy cells

"Researchers paired this molecule with another one that augments an immune reaction with the hope that it would target the cancer cells and kill them"

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Surgical Site Infections in General Surgical Wards at a Tertiary Care Hospital

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Abstract

Background: Surgical site infections are important cause of morbidity and mortality in admitted patients world over.

Objectives: To determine the pattern of surgical site infections in General Surgical ward of a tertiary care hospital.

Study type, settings and duration: Analytical cross-sectional study conducted at Department of General Surgery, Pakistan Institute of Medical Sciences, Islamabad for two years from January 2010 to December 2011.

Subjects and Methods: All cases were admitted in surgical ward with various surgical problems either as elective or emergency cases who developed wound infection later were included in the study. Cases of wound infection operated elsewhere, diabetic foot, and abscesses were excluded. Data collected included age, gender, primary diagnosis, mode of admission, comorbid factors, type and duration of surgery, expertise of the surgeon, use of antibiotics and hospital stay. After operation, wound was examined for evidence of infection from third post-op day onward. Any discharge was submitted for bacteriological examination. The wounds were followed till healed.

Results: A total of 1913 patients underwent surgery, including 983 cases (51.5 %) operated as elective and 932(48.5 %) as emergency. Postoperative wound infections occurred in 165 cases giving an overall incidence of infection in 8.6% cases. Infection rate in elective cases was lower (4.6%) than that in the emergency (12.7%) cases. Sixty one patients (37%) developed minor infection or stitch abscess, 104(63%) has frank suppuration requiring opening and drainage of wound; while 5(3%) cases developed deep seated infection of intra-abdominal spaces. E. coli was the commonest bacteria for wound infection (39%).

Conclusion: Post operative wound infection rate was 8.6%. The infection was significantly higher in cases who underwent emergency surgery and E.coli was the commonest pathogen to cause infection.

Key words: Surgical site infections, surgical wound infections, bacterial infections, antibiotic prophylaxis.

Introduction

Infections which develop more than 48 hours after admission are hospital acquired or nosocomial infections[1]. They are the sixth leading cause of death in USA, accounting for 150,000 deaths per year, and their incidence varies from 5-10%[2]. Nosocomial infections are an important cause of preventable morbidity and mortality that prolong hospital stay by an average of eight days[3] while the treatment cost and work load on health care facilities is increased many folds. Among surgical patients, surgical site infections (SSIs) are one of the most commonly reported nosocomial infection; accounting for 16%[4] to 38% of all such infections[5]. SSIs can debilitate patients and dramatically increase health care costs[6]. They are a leading cause of readmission, may lead to complications like delayed wound healing and revision surgery[7] and with longer hospital stay can render patients susceptible to infections from the hospital environments[8].

The CDC-definitions for surveillance of surgical site infections take into account 3 classes of wound infections: superficial, deep incisional SSI, and organ/space SSI[9]. Since ancient times wound infections have markedly increased the sufferings of postoperative cases: and despite being largely preventable, they remain a major source of morbidity[10]. In order to minimize postoperative surgical wound infection, it is important to create a safe environment by controlling four main sources of infection i.e. personnel, equipment, the environment, and patient`s risk factors[11].
Knowledge of specific risk factors for SSI is essential to create a specific SSI risk stratification index[12], and to develop strategies to confine infection rate. The best approach is the prevention as it is simpler, cheaper and more rewarding for the patients; and at least one third of them are preventable by simple measures[13]. Thus, every hospital needs to organize its infection control program. Failure to implement infection control policies and lack of awareness are the factors contributing to hospital infections and disease outbreaks. On the other hand, studies provide

evidence of a significant decreasing trend in the SSI rates following the infection control interventions[14]. In our hospitals, there are high rates of nosocomial infections with little efforts to control them. The present study was conducted on patients operated for various surgical problems in a tertiary care major public sector of Islamabad, to evaluate the frequency of surgical site infections.

Subjects and Methods

This analytical cross-sectional study was conducted in the department of general surgery, Pakistan Institute of Medical Sciences, Islamabad over two years from January 2010 to December 2011.

All adult cases admitted in surgical ward either as elective cases or as emergency were included in the study. Cases having wound infection, operated elsewhere, those with diabetic foot disease and those operated for incision and drainage of abscess were excluded. All the cases operated during the study period were observed for development of wound infection. Patients undergoing multiple admissions or operations for complications were counted once.

Consent was taken from all the patients who developed infection, for inclusion in the study. All the information collected was recorded on a specially designed proforma that included history, physical examination, any co-morbid factors and all investigations performed during their stay at the hospital. The operative details were noted including type of procedure, duration of surgery, whether operated by residents or consultants, and use of prophylactic antibiotics. The wounds were examined for infection from third postoperative day onward. Surgical site infection was identified with redness, inflammation, local heat, pain, temperature of 38°C or above, and septic discharge from incision site during 30 days after operation (according to WHO guidelines)[15]. The discharge was sent for culture and sensitivity. The infections were managed by standard protocol involving repeated dressings according to the case, drainage of pus if required, and change of antibiotic in the light of culture/sensitivity reports. Pre and postoperative hospital stay was noted. Infected wounds were inspected regularly during follow up until they were healed.

The information was entered in computer and data was analyzed using SPSS version 12.0. Various frequencies and percentages were calculated; the results are displayed in tabulated or graphic forms.

Results

During the study period, a total of 2108 cases were registered in surgical ward and 1915 were operated. Surgery in 983 cases (51.3%) was elective or planned while 932 patients (48.7 %) were operated in emergency. Majority were males 1167(61%). The median age was 42.7 years (range 16-82 years) and majority 1417(74%) were below 50 years of age. Almost 58% men developed infection. Postoperative infection occurred in 165 cases giving an overall incidence of 8.6% infection. Of 165 cases that developed wound infection, 69 (42%) patients were aged above 50 years. Infections were least common 20(2.1%) in clean procedures and were highest among dirty cases (Table-1). Out of 983 cases who were operated on elective list, infection occurred in 46 patients (4.6%). Out of 932 cases operated in emergency, infection occurred in 119 patients (12.7%).

Table 1: Infection rate in different procedures.

Type of procedure	Total cases (n=1915)		Infected cases (165)	
	n	%	n	%
Clean	976	51	20	2.1
Clean-contaminated	421	22	19	4.5
Contaminated	173	9	28	16.2
Dirty	343	18	98	28.5
Operative settings				
Setting	Number of infected cases			%
Elective surgery (n=983)	46			4.6
Emergency surgery (n=932)	119			12.7

Average duration of surgery was 109 minutes (range 35 minutes to 7 hours 20 minutes).

Antibiotic prophylaxis was given in clean cases (first

generation cephalosporins) and clean-contaminated cases (third generation cephalosporins). In contaminated or dirty cases, regular use of antibiotics was employed according to the case, rather than giving prophylaxis.

Average duration of hospital stay after surgery was 7.4 days (range 1-110 days), while average duration of hospital stay before surgery was 1.8 days (range 10 hours to 13 days). Although infected cases took longer in hospital, however, this aspect was not studied in detail.

Surgeries in 948 cases (49%) were performed by senior registrar or a surgeon of higher status; in this group 76 cases developed wound infection (8.0%). In 967 cases (51%) operations were performed by residents, under supervision by senior surgeons; in this group 89 cases developed wound infection (9.2%). Therefore, there was no significant difference in infection rate among the two groups.

Of the co-morbids, anemia (haemoglobin less than 10 gm/dl) was the most common. In elective cases it was corrected before surgery but in emergency cases per operative blood transfusion was given. Other co-morbid factors in 165 patients are shown in Table-2.

Surgical wound infection developed in 165 cases. Majority 99(60%) showed frank suppuration that required opening and drainage of wound (Figure-1). Wound infection was observed within 3-5 days in 110 cases (67%), within 6-8 days in 41 cases (25%), and within 9-14 days in 13 cases (8%). One case presented with infection 10 months after mesh repair for incisional hernia.

Table 2: Distribution of co-morbid factors. (n=165)

Factor observed	n	%
Anemia (Haemoglobin less than 10 gm/dl)	63	38
Malnutrition (Loss of more than 6 Kg body weight)	41	25
Smoking (more than 10 cigarettes/day)	26	16
Diabetes mellitus	19	11.5
Hypertension and / or ischemic heart disease.	19	11.5
Obesity (more than 10% of ideal body weight)	08	5.0
Compensated chronic liver disease	03	2.0

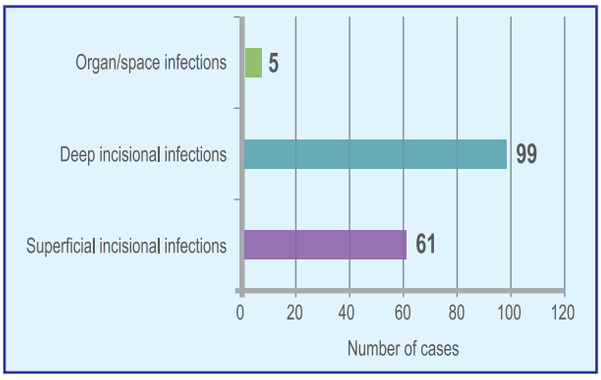

Figure 1: Types of infections

Discharge from the wound was submitted for bacterial culture in all cases. Twenty three cases (14%) showed mixed growth; 121(73%) showed growth of single organism; and 21(13%) had no growth. The commonest bacteria grown was E. coli in 64(39%) cases, Klebsiella spp. in 37(22%) cases, Pseudomonas aeruginosa in 25(15%) cases, and Styphylococcus aureus in 18(11%) cases including methicillin resistant S. aureus (MRSA) (Figure-2)

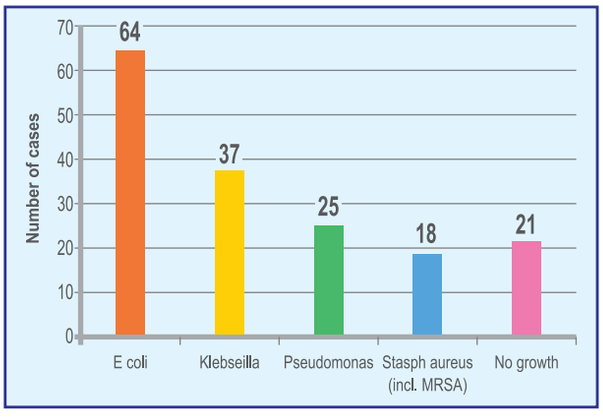

Figure 2: Organisms grown on culture.

In the present study surgical site infection were seen in 8.6% cases with majority of the cases undergoing emergency surgery. The incidence of SSI varies and is 4.4% in Taiwan[16], 5% in United States[17], and 5.2% in Japan[18], while a Brazilian study reported a much lower incidence of 1.8%[19]. Reports from Pakistan show a higher incidence of 6.5% from Peshawar[20], and 11.4% from Karachi[21]

Several factors are responsible for causing

infections which vary from patients themselves (especially contamination by alimentary tract bacteria) to other patients, hospital environment, food, hospital staff, infected surgical instruments, dressings, and even medicines and injections[22]. Advanced age is an important host-related risk factor[9,22]. Due to higher incidence of coexisting diseases, impaired immunological status, personal neglect, etc. However, gender is not a significant issue and same has been reported by others[22,23]

Type of surgery is directly related to the risk of developing wound infection. It is based on potential bacterial contamination of the tissues at the time of surgery and the level of bacterial burden. Our study also showed the association of type of surgery with infection rate and same reported by other worker[22]. Duration of surgery also influences wound infection and procedures that take more than two hours are associated with higher infection rates[24], due to longer exposure of tissues to theater environment, hypothermia[25], and requirement of blood transfusion all of them are potential risk factors for SSI[26]. In a study from Lahore, wound infection rate almost double in cases that took longer than 2 hours showing direct relation to duration of surgical procedure[24]. This was also observed in our study where most of the cases that got infected took longer than 100 minutes.

Operative settings (elective or emergency) also play a significant role in determining infection rates. Cases operated in emergency are more likely to get infected due to inadequate preparation, breach in sterilization protocol, pre-existing infection and reduced immunological status of patient. In the present study, infection rate in emergency cases was almost three times higher than in elective cases (12.7% versus 4.6%). This has also been observed by other workers. Studies from Lahore show about two and a half[27] to four times[24] higher infection rate in emergency cases.

Longer hospital stay, especially in postoperative period, is associated with substantial increase in wound infection rates[22]; and the risk increases with the duration of stay. On the other hand, prolonged preoperative hospital stay also contributes to increased infection rate[9]. This may be related to bacterial colonization of patient's skin and nares with resistant hospital flora.

Expertise of surgeon is a potential factor in determining wound infection rate as reported by some authors[24]. We did not observe any significant difference of infection rate between cases operated by seniors and juniors. Improvement in the surgical skills and techniques of resident staff and also their direct supervision not only decreases the duration of operation but also incidence of postoperative wound infection[24].

In our study most common bacterial growth was of E. coli, followed by Klebsiella pneumoniae, Pseudomonas aeruginosa, and Styphylococcus aureus including MRSA. Similar pattern has also been reported from Hyderabad[25], but this is in contrast to the literature that reported Staphylococcus aureus as the most common organism[20,26,28] that is resistant to the commonly used antibiotics.

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Spectrum of Aerobic Microorganisms seen in Postoperative Wound Infections at PIMS - Islamabad

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Abstract

Background: Postoperative wound infection continues to be a major complication for patients undergoing operative procedures, and remains a cause of concern for surgeons.

Objectives: The aim of this study was to determine spectrum of microorganisms in postoperative wound infections in general surgical wards at Pakistan Institute of Medical Sciences, Islamabad.

Methodology: This prospective observational study was conducted by the Surgical Unit III, PIMS, Islamabad, from July 2012 to June 2014. Data of the patients developing postoperative wound infection of various types were collected and analyzed. Data included clinical features, primary diagnosis, and type of surgery performed, timing when evidence of wound infection was observed, the causative microorganism, and their antibiotic sensitivity pattern.

Results: During the study period, 1621 patients were admitted to the surgical ward; out of which 1375 underwent surgery. Among them, 136 patients developed wound infections, giving an overall wound infection rate of 9.9%. In these patients, 129 pathogens were isolated from 121 positive culture samples. In 15 (11.0%) cases, no organism was grown. Majority of the wounds were infected with a single microbial organism (113, 93.4%); while 8 samples (6.6 %) were infected with 2 different types of microbes. The most frequently isolated pathogen was E. Coli (grown in 43 cases, 33.3%); followed by MRSA (20.2%). The antibiotic sensitivity of various bacteria was studied, and it showed change in the sensitivity pattern of E. Coli.

Conclusion: The E. coli is dominating organism in postoperative wound infection in general surgical wards at our hospital. It is showing a change in susceptibility pattern. The problem of emerging drug resistance among bacteria can be minimized by adopting strict aseptic surgical procedures, judicial use of antibiotics, and proper wound care.

Limitation of the study: Anaerobic cultures were not performed

Keywords: Postoperative wound infection, microbial sensitivity, surgical site infection.

Introduction

Patients undergoing various surgical procedures are at risk of acquiring infections at the site of incision. These infections are a common problem, not only in our set up, but also all over the world. Surgical wound infections account for 14% to 17% of all hospital-acquired infections; and about 38% of nosocomial infections in surgical patients.[1]

They have serious consequences for outcomes and costs, especially in countries with limited financial resources, because they can significantly increase morbidity, including hospital stay, thus making patients further susceptible to infection from within the hospital. Therefore such infections are a serious, yet mostly preventable threat to surgical patients. Besides increasing morbidity, they can be a contributing factor to mortality.

Accurate prevalence of postoperative wound infections is difficult to ascertain because although surgical site infection is a relatively serious problem in our region, there are scanty reports in local literature on the pathogens that are involved in such infections. Secondly, most of these studies are mainly from the microbiology laboratory records which may not show the complete clinical picture. Another important issue is that wound infections often manifest after patients are discharged and are missed by hospital-based surveillance.[2] Although these cannot be completely eradicated, taking prompt control measures against the most commonly isolated organism and improving wound care, may lead to the minimum of wound infection.[3] Therefore, emphasis should be put on their prevention. A high bacterial load in the postoperative surgical wound is a major risk factor for the development of postoperative infections.[4]

The rate of surgical wound infections is, therefore, strongly influenced by operating theatre quality.[1] For their prevention, there is a need to adopt basic principles of asepsis and sterilization, and to make judicious use of prophylactic and therapeutic antibiotics,[5] as misuse of antibiotics leads to increased bacterial resistance and their dissemination.[6]

The aim of this study was to determine spectrum of microorganisms in postoperative wound infections in general surgical wards at Pakistan Institute of Medical Sciences, Islamabad; and to study sensitivity of the isolates so that recommendations can be made for their prevention and empirical antibiotic treatment.

Methodology

The prospective observational study was conducted at Pakistan Institute of Medical Sciences, General Surgical Wards from July 2012 to June 2014.

Inclusion criteria: All adult patients admitted / operated in general surgical ward for various indications over study period, that later developed wound infections.

Exclusion criteria: Cases that had undergone any surgical procedure in the previous one month were excluded from this study.

Data collection procedure: Data of the patients developing postoperative wound infection of various types were collected. Information was obtained about age and gender of patients, type of surgical procedure, and antibiotics used. Although pus culture was part of the routine protocol for wound infections, informed written consent was obtained from all patients for inclusion in the study; and approval from Hospital Ethical Committee was also acquired. The results obtained were used in the improved management of the patients.
Antibiotic prophylaxis was administered according to the institutional policy. We used first/second generation antibiotics administered 30 minutes before induction of anaesthesia, through intravenous route. Operations were performed with strict aseptic techniques. The surgical sites were examined on the 2nd post-operative day and then daily for pain, redness, warmth, swelling, and purulent drainage at the incision site; until the patients were discharged. Post-discharge examination of the surgical site was performed for all patients in the outpatient clinic for any evidence of wound infection, on weekly basis; the surveillance was continued for up to 30 days after surgery.

Culture identification and sensitivity testing: Standard operating procedures for pus sample collection, transport, culture and susceptibility testing for isolated organisms were followed to ensure procedural quality. Pus specimens were collected using sterile pus culture cotton swabs placed in sterilized containers; with aseptic techniques to avoid contamination from skin. Samples were submitted to the laboratory for processing. The samples were plated on MacConkey agar using calibrated wire loops, and were then incubated in aerobic atmosphere at 37°C for 24 hours.
Bacterial identification was done by colony morphology analysis, Gram stain, and routine biochemical tests. Susceptibility testing was done using the disk diffusion technique.
All information was entered to a specific proforma.

Data analysis: The data collected was entered and analyzed using SPSS version 16.0. Descriptive statistics was used to show simple frequencies and means.

Limitation of the study: Anaerobic cultures were not performed.

Results

During the study period, 1621 patients were admitted to the surgical ward under surgical unit-III. Out of them 1375 were operated for various procedures (elective and emergency), including 734 males (53.4%) and 641 females (46.6%). Among these cases, 136 patients developed wound infections, giving an overall wound infection rate of 9.9% (including emergency and elective cases).

Out of these 136 patients, 129 pathogens were isolated from 121 positive culture samples. In 15 (11.0%) cases, no organism was grown. Majority of the wounds were infected with a single microbial organism (113, 93.4%); while 8 samples (6.6%) were infected with 2 different types of microbes.
The most frequently isolated pathogen was E. coli, grown in 43 cases (33.3%); followed by MRSA (20.2%). Other organisms included Klebsiella species, Acinetobacter spp. Pseudomonas species, Proteus species and Streptococci.

Their relative frequencies are given in the figure-1.

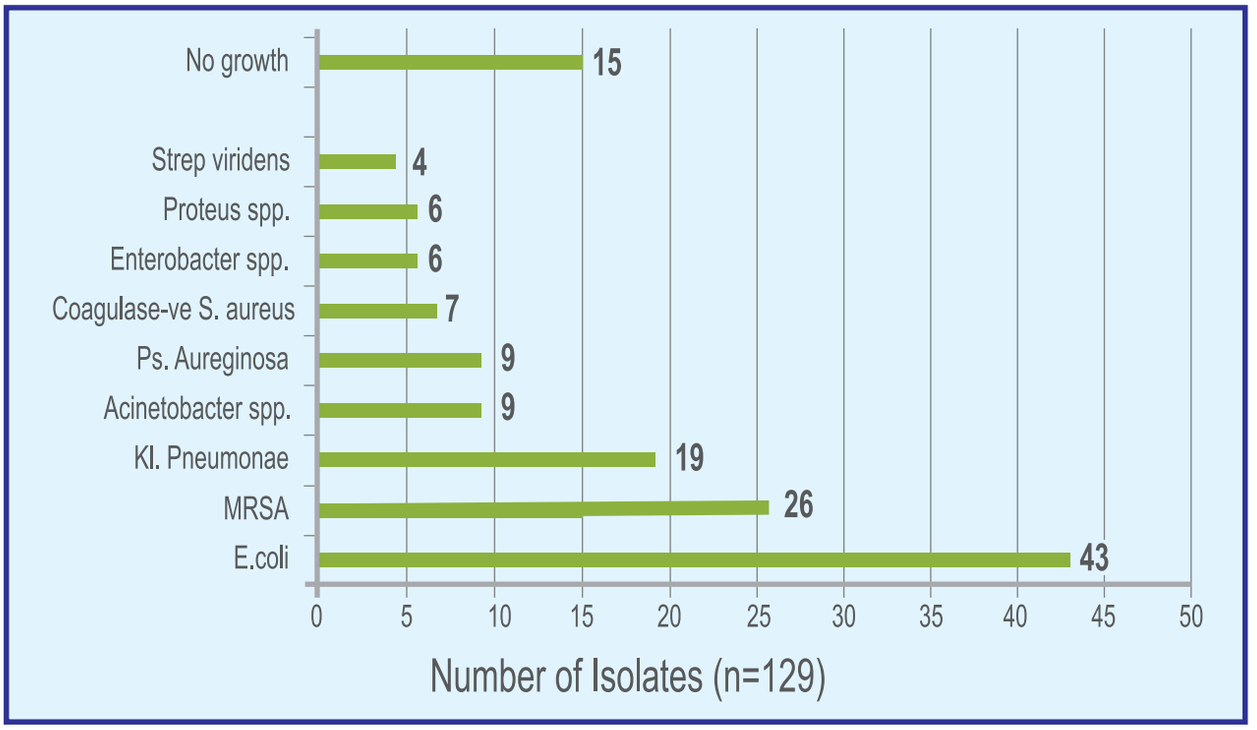

Figure-1: The microorganisms grown from pus samples

Table I: Relative antibiotic sensitivity of various bacterial strains (in percent)

Antibiotics / Bacteria	Ami	Am C	Cef	Ceft S	Cftz	Imi	Lev	Cip	Tob	Cot	BP	Ery	Van	Lin	Cli	G	Chl
E. coli	74	35	60	25	23	86	32	34	29	18	-	-	-	-	-	-	-
Pseudomonas	62	-	60	20	50	62	50	45	60	-	-	-	-	-	-	-	-
Acinetobacter	12	-	10	01	02	06	02	03	44	-	-	-	-	-	-	-	-
Enterococci	-	38	-	-	-	-	14	12	-	03	-	-	90	-	-	-	50
MSSA	-	-	-	-	-	-	74	71	-	48	02	64	99	100	80	82	90
MRSA	-	-	-	-	-	-	10	09	-	24	03	11	99	100	42	13	35

Legend:
MSSA= Methicillin sensitive Staphylococcus aureus **MRSA**= Methicillin resistant Staphylococcus aureus
Ami=Amikacin **AmC**=Amoxicillin+Clavulanic acid **CefS**=Cefoperazone+Salbactum **Ceft**=Ceftriaxone
Cftz=Ceftazidim **Imi**=Imipenem **Lev**=Levofloxacin **Cip**=Ciprofloxacin **Tob**=Tobramycin **Cot**=Co-tramaxazole
BP=Benzyl Penicillin **Ery**=Erythromycin **Van**=Vancomycin **Lin**=Linezolid **Cli**=Clindamycin **G**=Gentamycin
Chl=Chloramphenicol

(Source: PIMS lab data year 2013, personal communication)

The antibiogram for various frequently isolated bacteria was studied. It showed variable degree of sensitivity of bacteria to the commonly used antibiotics (table-I). Sensitivity of E. Coli to amikacin, imipenem and cefoperazone+salbactum was more than 60%, while it was less than 30% for Amoxicillin+clavulinate, ceftriaxone, ceftazine, levofloxacin, tobramycin and levofloxacin.

On the other hand, MRSA showed 100% sensitivity for vancomycin and linezolids. However, the sensitivity of MRSA for benzyl penicillin, levofloxacin, ciprofloxacin, gentamycin and erythromycin was less than 10%. Sensitivity of acinetobacter for tobramycin was around 44% while for most of the other antibiotics it was less than 10%

Discussion

The incidence of postoperative wound infections and the spectrum of pathogens infecting such wounds vary with regions, and within the same region in different hospitals. It may even show seasonal variations. This in fact depends on a number of factors including locality of the hospital, the predominant catering populations, relative workload of emergency versus elective cases, institutional policies regarding antibiotic selection, and presence or effectiveness of infection control strategies. The incidence of contracting wound infection goes on increasing as the age of the patient increases, owing to weakened immune system response, reduced metabolism rate and other aging factors. The wound infection rate in our study was 9.9% (including both elective and emergency cases). The figures for wound infection rate quoted in the international literature for incidence of these infections are much lower and vary from 4.4%[7] - 5.2%;[8] while a Brazilian study reported an incidence of just 1.8%.[9] On the other hand, local literature reflects somewhat higher incidence, e.g. 6.5% from Peshawer,[10] and 11.4% from a general hospital in Karachi catering poor strata of the society.[11] Our results come to lay in between the two; and are similar to the figure of 9.3% reported from Nawabshah.[12]

With the exception of clean operative procedures, surgical wound infections are recognized as having a polymicrobial etiology, involving both aerobic and anaerobic microorganisms. Rapidly emerging nosocomial pathogens and the problem of multi-drug resistance necessitates periodic review of isolation patterns and sensitivity in surgical practice.[13] Regular evaluation of antibiotic sensitivity profile is helpful to make guidelines for dealing with the wound infections at the outset and for which antibiotic to start with.[14]

We observed that the most common pathogen involved in postoperative wound infections was E. coli (33.3%); followed by MRSA (20.2%); Klebsiella species (14.7%); Pseudomonas aeruginosa and Acinetobacter spp (each 6.9%); Coagulase negative Staphylococcus (5.4%); Enterobacter spp. and Proteus spp. (each 4.7%); and Strep. Viridens (3.1%). The frequency of Gram positive pathogens was 28.7% (37 out of 129) and that of Gram negative pathogens was 71.3% (92 out of 129).

The two most frequently reported organisms causing surgical site infections are Staph. aureus and Escherichia coli. Majority of the studies from local[3,5,12,15,] and international literature[16-19] have indicated that Staph. aureus was the most common bacteria cultured from infected wounds. The slight variations in frequency of positive cultures are due different settings, study population and use of antibiotic drugs. The prevalence of Staph aureus was reported to be significantly higher in specimens from ICU patients;[20] indicating the inherent tendency of these strains to become endemic in the critical care units as well as their propensity for nosocomial spread. In the past decade, new methicillin-resistant Staphylococcus aureus (MRSA) strains have emerged as a predominant cause of community-associated skin and soft-tissue infections.[21] On the other hand, only few reports have shown dominance of E. coli in wound cultures as observed in the current study.[13,15,17,22] The predominance of E. coli in surgical site infections has been previously reported as well in a study published by the authors.[23]

Other bacteria like Pseudomonas aeruginosa[3,15] Klebsiella spp.[13,15] Streptococcal pneumoniae[22] and Proteus spp.[15] have also been isolated from cultures

of postoperative wounds; however, these organisms used to be third or fourth in the lists.

Our results revealed that most strains of E. coli were sensitive to amikacin, imipenem, and cefoperazone+salbactum; but sensitivity to other third generation cephalosporins and quinolones was quite low. Previously, this bacteria has shown 100% sensitivity to penicillin derivatives and carbapenem;[13] sulbactam potentiated sulfoperazone, and meropenam;[24] quinolones and 3rd generation cephalosporins.[22] These results indicate a change in the sensitivity pattern of E. coli.

This study shows sensitivity of MRSA to vancomycin, linezolid, and clindamycin. Staphylococcus aureus isolates have shown 76% sensitivity against gentamicin in a study;[25] while in another study 65% strains of staph aureus were sensitive to ofloxacin.[26] Although the infecting strains of MRSA have been demonstrated to be susceptible to recommended non-β-lactam oral agents,[21] it shows multi-drug resistance, and infections caused by these isolates are difficult to treat.

However, Ahmad SS et al from Karachi have observed that vancomycin, fusidic acid, chloramphenicol and fosfomycin can be considered as good choices.[27] Khurram M et al from Rawalpindi have also reported that all strains of MRSA were sensitive to vancomycin and linezolid.[24]

More than 60% of Pseudomonas aeruginosa were sensitive to amikacin, quinolones and third generation cephalosporins. This bacteria shows sensitivity to gentamycin,[25] imepenam, and sparfloxacin in more than 70% cases.[24] The sensitivity of Acinetobacter was 44% for tobramycin, but it was poor for most of the other antibiotics. Acinetobacter species are becoming difficult to treat day by day due to increasing number of resistant isolates,[28] especially the 'multi-drug resistant' Acinetobacter spp.[29]

The problem in wound infection management is due to the growing spread of resistant microorganisms, including both Gram-negative and Gram-positive pathogens.[30] E. coli resistance against most of the commonly used antibiotics has been observed to be on the rise.[31] One of the major risk factors for emerging strains of drug-resistant E. coli and other species is previous exposure to antimicrobials.[32] These drug resistant infections can be minimized to some extent by judicial use of antibiotics and adherence to strict infection control strategies.[28] The type of surgical antimicrobial prophylaxis is determined by the spectrum and pattern of antimicrobial resistance of pathogens causing surgical site infections.[17]

Due to high drug resistance among common pathogens, antibiotic use policy should strictly follow WHO guidelines and their unnecessary use should be discouraged.[33]

This is a small study from single general surgical unit. There is a need that regular evaluation of antibiotic sensitivity patterns should be conducted at the institutional or higher level in order to devise an empiric drug therapy. The lack of anaerobic culture system was an additional limitation.

Conclusion

The E. coli is dominating organism in postoperative wound infection in general surgical wards at our hospital. It is showing a change in susceptibility pattern. Other pathogens grown from infected wounds include Staph aureus, Kl pneumoniae, Pseudomonas spp. Though it is not possible to eradicate the surgical wound infections completely, but by taking proper preventive measures and adopting strict aseptic surgical procedures, judicial use of antibiotics, and proper wound care, this problem can be minimized. Otherwise these infections will go on increasing, with consequent rise in wound-related morbidity and mortality.

Acknowledgements

Our appreciation goes to the Department of Pathology at PIMS for the expertise support during the study references

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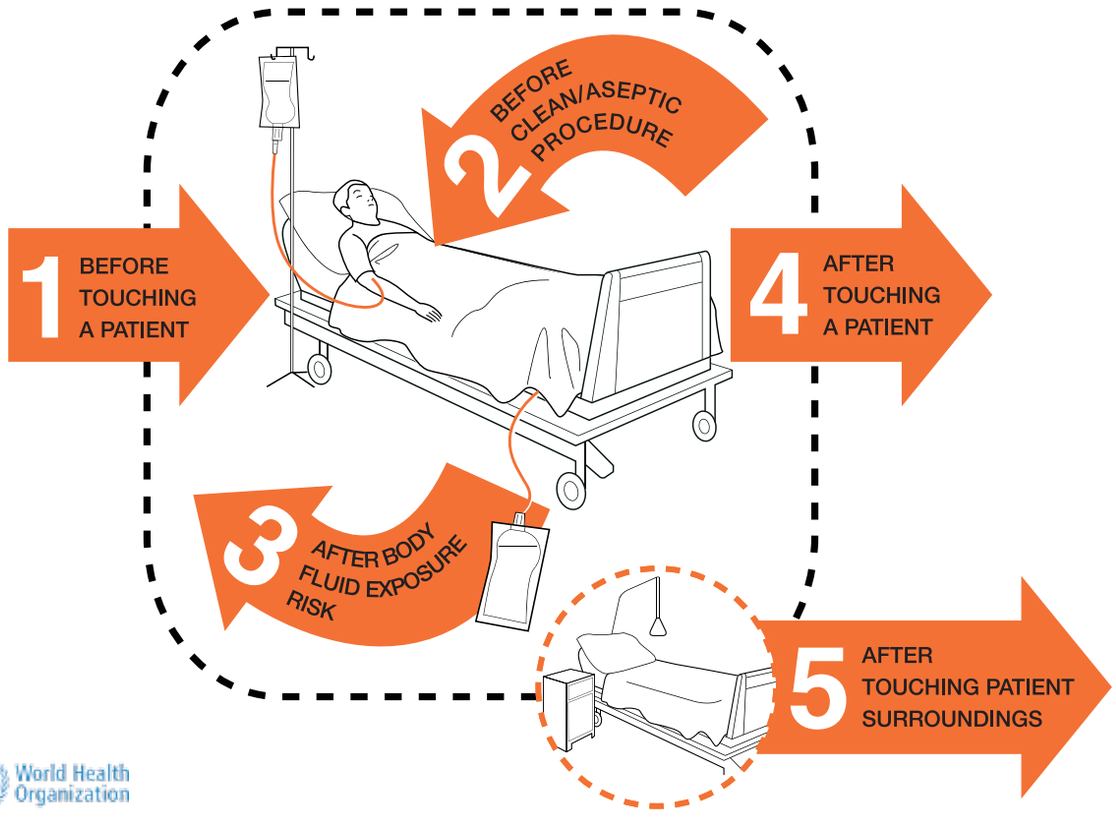
Your 5 Moments for HAND HYGIENE



World Health Organization

MRI is Dangerous, Why?

Dr. Afzal Hussain
Orthopedic Surgeon, PSRD Hospital- Lahore

3 Reasons, Why MRI is Dangerous

- Interpretation is focused on segmental pathology.
- Treatment is planned only on MRI based segmental pathology without clinical correlation.
- Patient gets the wrong perception that MRI findings are the ultimate information about the disease.

Interpretation is focused on segmental pathology.

Herniated disc protruding

Literature Review

Eur Spine J (2011) 20:585–591
DOI 10.1007/s00586-010-1644-y

ORIGINAL ARTICLE

Disc degeneration of cervical spine on MRI in patients with lumbar disc herniation: comparison study with asymptomatic volunteers

Eijiro Okada · Mario Matsumoto · Hirokazu Fujiwara · Yoshiaki Toyama

Received: 13 July 2010 / Revised: 8 September 2010 / Accepted: 16 November 2010 / Published online: 3 December 2010

- The percentage of subjects with degenerative changes in the cervical discs was 98.0% in the lumbar disc herniation group and 88.5% in the control group (p = 0.034).
- The result of this study suggests that disc degeneration appears to be a systemic phenomenon.

Surgery is advised if Disc. Protrusion is seen

The New England
Journal of Medicine

Volume 331 JULY 14, 1994 Number 2

MAGNETIC RESONANCE IMAGING OF THE LUMBAR SPINE IN PEOPLE WITHOUT BACK PAIN

Maureen C. Jensen, M.D., Michael N. Brant-Zawadzki, M.D., Nancy Obuchowski, Ph.D., Michael T. Modic, M.D., Dennis Malkasian, M.D., Ph.D., and Jeffrey S. Ross, M.D.

- 52 percent of without symptoms had a bulge at at least one intervertebral disk , 27 percent had a protrusion, and 1 percent had a extrusion, Thus, 64 percent of these people without back pain had an intervertebral disk abnormality and 38 percent had an abnormality at more than one level
- Abnormalities of the lumbar spine by MRI examination can be meaningless if considered in isolation

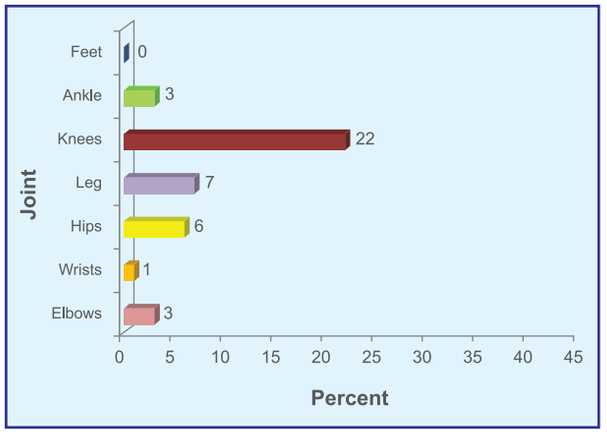
Clinical correlations establish other areas of involvement in the body in cases of lumbar disc disease

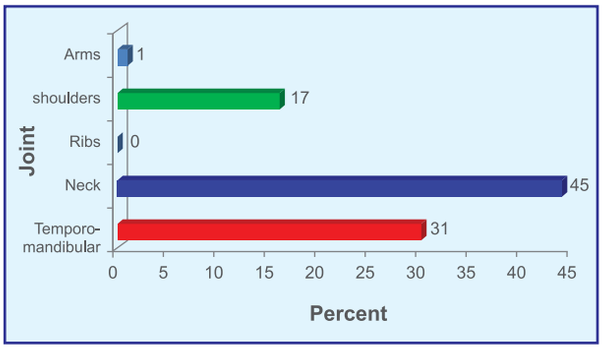
ORIGINAL ARTICLE

Low Back Pain: Not a Segmental Pathology

Afzal Hussain[1], Saleem Bashir[2], Huma Aslam[3], N. Rehan[4]

Conclusions: The results of the present study calls for wider dissemination of these findings and making health care providers of the importance of examining all area of musculoskeletal system when treating patients with low back pain





ORIGINAL ARTICLE

Concurrent Cervical Pathology in Patients Suffering from Low Back Pain

Afzal Hussain[1], Saleem Bashir[2], Huma Aslam[3], N. Rehan[4]

Conclusions: The results of this research indicate that since the prevalence of cervical pathology among Pakistani patients of LBP is fairly high, the health care providers shouldn't place emphasis only on lumbosacral spine and consider LBP to be a segmental pathology but take into consideration all segments of the spine, while investigating the chief complaints of the patient in order to guide the treatment plan

JPDA Vol. 27 (2) July, 2015

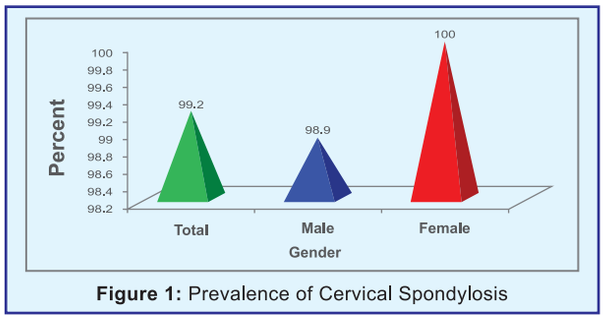
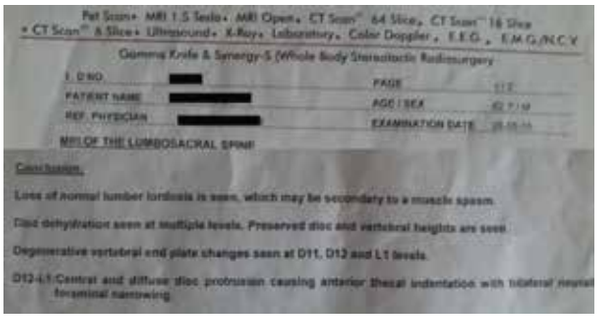


Figure 1: Prevalence of Cervical Spondylosis

Surgery is advised if Disc. Protrusion is seen Example:

- A 62 years male presented with pain around left hip for 4 years.
- Pain on driving and long sitting making walking difficult.
- Suspicion of disc pathology led the clinician to ask for lumbo sacral spine MRI.
- MRI showed disc protrusion at L3-L4

MRI Report



Surgery

- Discectomy L3-L4 Leminectomy
- He had disc surgery at L3-L4 2 years back with no resultant improvement.
- Now he showed up to us and clinical examination revealed painful movement at left hip.
- X-Rays hip showed left hip arthritis with subluxation of left hip

- Lesson learned that decision made on lumbar spine MRI without clinical thorough examination led to wrong decision of operating on L3-L4 rather than on left hip.
- Abnormalities of the lumbar spine by MRI examination can be meaningless if considered in isolation

Conclusion

- Patients get the wrong perception that in MRI the findings are the ultimate information about the disease.
- This is how the MRI trend without clinical examination and other investigative workup becomes dangerous for the patients as their sufferings are never-ending.

This was a right femoral hernia containing the vermiform appendix. This type of hernia is named after René-Jacques Croissant de Garengeot (1688–1759), a Parisian surgeon who first described this pathology in 1731. De Garengeot hernia is an exceedingly rare phenomenon, with less than 1 per cent of all femoral hernias containing the appendix, and only 0•08–0•13 per cent involving in carcerated acute appendiciti

Source: ***British Journal of Surgery****, Dec-2018*

Case Study:
Acute Calculous Cholecystitis

Dr. Faisal Murad & Dr. Faisal Nadeem
Department of General Surgery,
Maroof International Hospital - Islamabad

35 year female presented with acute calculous cholecystitis. After initial evaluation patient was planned for laparoscopic cholecystectomy. Following are per operative images

After inserting ports and pneumoperitoneum

Image 1:

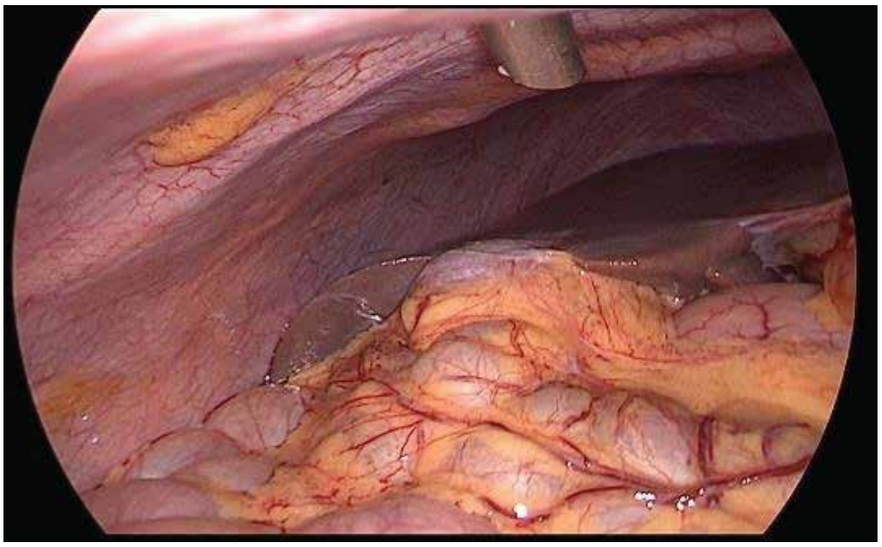
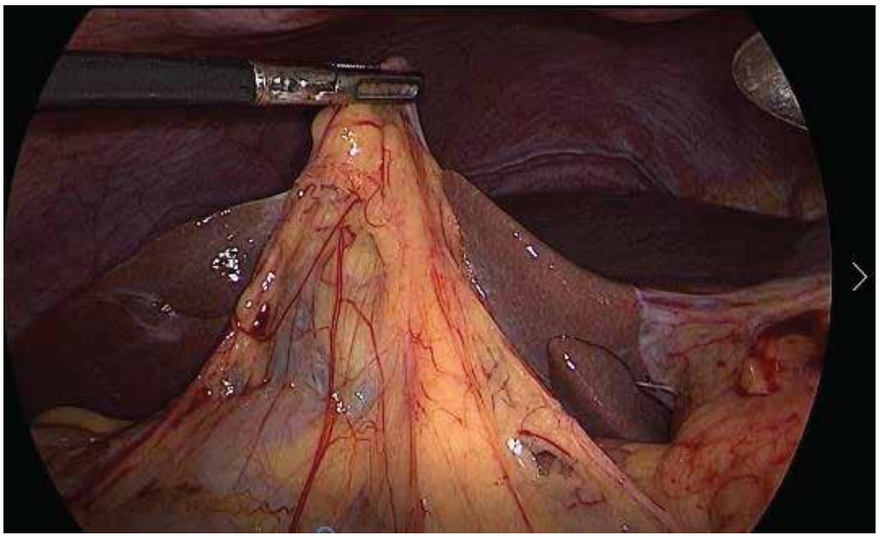
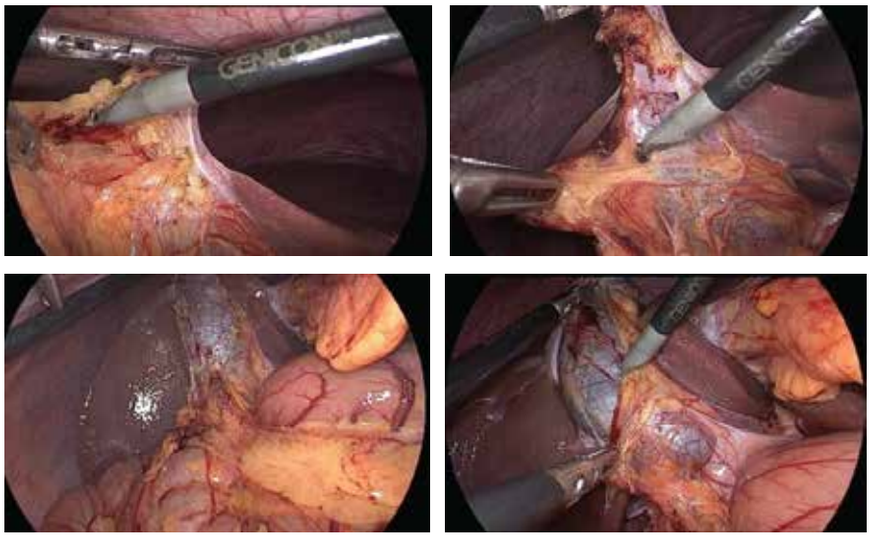


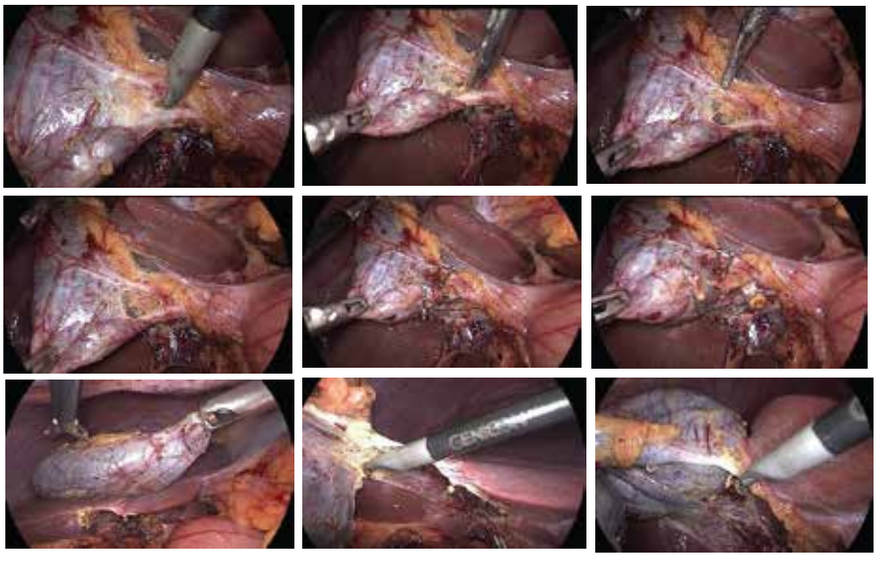
Image 2: showing adhesions with omentum and acutely inflammed gallbladder



Adheolysis & Freeing Gallbladder



Delivering Gallbladder



Summary:
35 year old female presented with right hypochondrium pain with nausea and 1 episode of vomiting after having fatty meal from outside 24 hours back. No fever, altered bowel habits, dyspepsia, yellow discoloration or any other symptoms.

She had no previous co-morbid. No previous history of any such attack.

On examination her blood pressure was 130/80mmHg, pulse 87 beats/min, oxygen saturation 97%, afebrile and respiratory rate of 16/min.

Abdomen was soft, tender in right hypochondrium but Murphy's sign was negative

Rest of systemic examination was unremarkable
Her blood tests were sent which showed raised white cell count of 13000/uL with 82% neutrophilia.
Liver function tests were normal.
Serum amylase and lipase were normal.
Ultrasound examination showed distended gallbladder with multiple echogenic foci representing gallstones with mild pericholecystic fluid. Thickness of gallbladder wall was normal. Common bile duct was not dilated.
Patient was planned for early laparoscopic cholecystectomy. Rest of the labs related to anesthesia fitnesses were unremarkable.
Patient was given general anesthesia and Laparoscopic cholecystectomy was performed using standard 4 ports.
Peroperative findings included acute cholecystitis with adhesions formation.
Adheolysis was done. Callot's triangle was identified followed by separation of cystic duct and artery. Cystic duct was clipped alongwith artery and then divided. Gallbladder was dissected away from liver bed and delivered. Wounds were closed.
Postoperatively patient was mobilized after 3 to 4 hours and deep breathing exercises were advised. Patient was allowed liquid diet after 6 hours and afterwards when she was able to tolerate patient was started on soft diet.
Patient's abdomen was soft, non-tender, bowel sounds were audible. Patient had no pain and was discharged with proper instructions after 2nd and 3rd doses of antibiotics within 24 hours.
On 3rd post-operative day patient had healthy wounds and was tolerating well and had resumed daily activities except heavy exertion.
Histopathology report was traced on 10th day that showed acute calculous cholecystitis.
Patient stitches were removed on 10th day, and patient had an uneventful recovery

Misusing and overusing ANTIBIOTICS puts us all at risk

Taking antibiotics when they are not needed accelerates emergence of antibiotic resistance, **one of the biggest threats to global health**

Antibiotic resistant infections can lead to **longer hospital stays, higher medical costs and more deaths**

Overuse of antibiotics can cause bacteria to become resistant, meaning current treatments will no longer work

You can help reduce antibiotic resistance

Always follow the advice of a qualified health care professional when taking antibiotics

Antibiotic resistant infections can affect anyone, of any age, in any country

It is the bacteria itself not the person or the animal – that becomes resistant to antibiotics

When bacteria become resistant to antibiotics, **common infections will no longer be treatable**

HANDLE ANTIBIOTICS WITH CARE

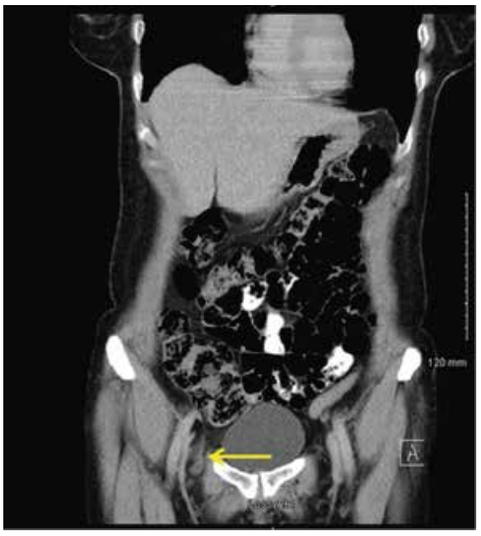
World Health Organization

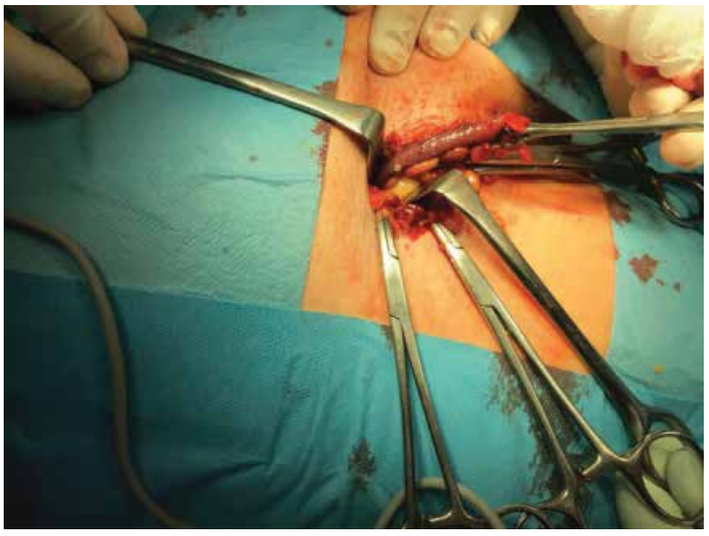
Quiz & Winner of Lucky Draw

Reported by:
Dr. Shuja Ajaz

Question:

What type of hernia is this, shown on the CT scan (left) and operative illustration (right)?





Winners of Lucky Draw

The lucky draw was held in a meeting at Jinnah Postgraduate Medical Centre, Karachi, Following are the names of Lucky Draw winners drawn at randomly by Prof. Salim Ahmed Soomro and his team.

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

1. Dr. Asif Qureshi, Darul Sehat Hospital - Karachi
2. Dr. Ghulam Murtaza, Patel Hospital - Karachi
3. Dr. Aneela Malik, NMC - Karachi
4. Dr. Javed Raza Gardezi, Hameed Latif Hospital - Lahore
5. Dr. Ahsan Naseem, Jinnah Hospital - Lahore
6. Dr. Faisal Nadeem, Maroof International Hospital - Islamabad
7. Dr. Aziz ur Rehman, Jinnah Hospital - Gujranwala
8. Dr. Rana Shafiq Ahmed, DHQ Hospital - Narowal
9. Dr. Munawar Nadeem, Surgical Hospital - Sialkot
10. Dr. Abdul Sattar Memon, Saddar - Hyderabad
11. Dr. Mushtaque Ahmed Abbasi, PUHMS - Nawabshah
12. Prof. Nadeem Khan, Lady Reading Hospital - Peshawar
13. Dr. Shamsher Ali, Nowshera Cantt. - Nowshera
14. Dr. Safdar Khan, MMDC - Multan
15. Dr. Tanveer Khaliq, PIMS - Islamabad