SURGICAL OUTCOME OF INTRADURAL-EXTRA-MEDULLAR SPINAL TUMOUR: OUR EXPERIENCE IN DHAKA MEDICAL COLLEGE & HOSPITAL

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Abstract:
Introduction: Surgical outcome of spinal tumours varies depending on a number of factors such as: site of tumour compression within the spinal canal, the histological characteristics of tumours, the neurological progression and initial response to corticosteroid therapy, patient’s age, comorbidity, tumour extension, involvement of neighbor structures and organs etc.

Materials & Methods: The 46 patients with intradural extramedullary (IDEM) spinal tumour underwent surgery by our team in 7 years (2010-2017) were reviewed retrospectively.

Discussion: Analysis of the surgical outcome of our spinal tumour patients was done on different variables like age, sex, presenting symptoms, neuro imaging, comorbidities etc. The aim of surgery was decompression of the spinal cord and total removal of the tumour.

Conclusion: The aim of this study is to analyze the data to make conclusion for more effective strategy as per site, size, type, resectibility and histological variety to establish an effective treatment protocol and prevention of per-operative and post-operative complications. Intradural extramedullary tumor can be radically resected with no mortality and minimal peri-operative morbidity

Key Words: Spinal tumours, spinal cord compression, surgical outcome, intradural extramedullary, IDEM.

Introduction:
Surgical outcome of spinal tumours varies depending on a number of factors such as: site of tumour compression within the spinal canal, the histological characteristics of tumours, the neurological progression and initial response to corticosteroid therapy, patient’s age, comorbidity, tumour extension, involvement of neighbor structures and organs etc. Treatment of spine and spinal cord tumors is complex and a multidisciplinary approach is required. Treatment options are surgery, radiation therapy and chemotherapy. This study was conducted to analyze factors with impact on the functional outcome in a series of 46 surgically treated patients with spinal tumours and to point out the characteristics of the different histological entities.

The signs and symptoms of intradural extramedullary tumors are not specific to tumors and are similar to those caused by any spinal disorder that produces symptoms of spinal cord or nerve root compression. Because of the slow growth of these tumors, symptoms may be subtle and progress slowly over time before diagnosis. The benign nature of ordinary spinal schwannomas is well documented. Total surgical removal can usually be achieved...
and short-term outcome is favorable in those who are not too severely crippled before operation\(^5,7\).

Intradural-extradurally (ID-EM) tumors are the most commonly observed intradural spinal tumors, comprising over 60% of tumors found within the spinal canal \(^8\). While consisting of a heterogeneous group of pathological entities, the vast majority of these lesions are one of three types: meningiomas, schwannomas or neurofibromas \(^9\).

Fortunately, the more common tumors are typically benign and thus, surgical excision represents the possibility of a curative result\(^10\). Surgical outcomes have generally been quite positive, with multiple studies quoting gross total resection rates approaching 100% with minimal morbidity and mortality regardless of histologic subtype \(^11,12\).

**Materials & Methods:**
The 46 patients with intradural extramedullary spinal tumours underwent surgery by our team in 7 years (2010-2017) were reviewed retrospectively.

**Characteristics of patients:**

| Variable                   | Number (%) |
|----------------------------|------------|
| Age                        |            |
| <20                        | 4 (8.69%)  |
| 21-40                      | 10 (21.74%)|
| 41-60                      | 26 (56.52%)|
| 61-80                      | 6 (13.04%) |
| Sex                        |            |
| Male                       | 22 (47.83%)|
| Female                     | 24 (52.17%)|
| Presenting Symptom         |            |
| Back Pain                  | 46 (100%)  |
| Radicular Pain             | 35 (76.09%)|
| Motor deficit              | 40 (86.96%)|
| Sensory deficit            | 40 (86.96%)|
| Autonomic disturbance      | 25 (54.35%)|
| Neuro-imaging              |            |
| Plain X-ray                | 46 (100%)  |
| CT scan                    | 4 (8.69%)  |
| MRI                        | 46 (100%)  |
| Co-morbidity               |            |
| Hypertension               | 20 (43.48%)|
| Diabetes                   | 9 (19.57%) |
| COPD                       | 2 (4.35%)  |

The aim of surgery was total removal of the tumor and spinal with minimal neurological deficit and nerve root preservation. Most of the cases were done by laminectomy or laminoplasty under microscope.

**Results:**
Many factors have influenced the outcome of surgical treatment. The most important are the histological characteristics of tumor, spinal segment affected and the degree of decompression.

| Trait                       | Number (%) |
|-----------------------------|------------|
| Spinal level                |            |
| Cervicomedulary Junction    | 3 (6.52%)  |
| Cervical                    | 10 (21.74%)|
| Cervico-dorsal junction     | 3 (6.52%)  |
| Dorsal spine                | 27 (58.7%) |
| Conus level                 | 3 (6.52%)  |
| Nature                      |            |
| Meningioma                  | 17 (36.96%)|
| Schwannoma                  | 20 (43.48%)|
| Neurofibroma                | 8 (17.39%) |
| Myxopapillary Ependymoma    | 1 (2.17%)  |

Satisfactory postoperative outcome corresponds with the level of resection (e.g. total removal of meningiomas or neurofibromas leads to full recovery).
**Extent of tumor resection:**

| Trait            | Number (%) |
|------------------|------------|
| Gross total      | 36 (78.26%)|
| Near total       | 8 (17.39%) |
| Subtotal         | 2 (4.35%)  |

**Patient onset of improvement:**

| Trait                        | Number (%) |
|------------------------------|------------|
| Immediate improvement        | 16 (34.78%)|
| Improvement at discharge (7 days) | 19 (41.30%)|
| Improvement at first month follow-up | 7 (15.22%)|
| No improvement               | 3 (6.52%)  |
| Deterioration                | 1 (2.17%)  |

The most frequent difficulties encountered during surgery were the perioperative bleeding, anesthetic hazard in a previously pulmonary compromised patient, difficulties when undergoing spinal instrumentation due to tumor infiltration etc.

**Postoperative complications include:**

| Complication         | Number (%) |
|----------------------|------------|
| CSF leakage          | 1 (2.17%)  |
| Wound infection      | 2 (4.35%)  |
| Pseudo-meningocele   | 1 (2.17%)  |

**Discussion:**

The optimal surgical approach provides maximal exposure with the least manipulation of the neural elements. For most intradural extramedullary tumors, resection can be accomplished with a dorsal midline approach. As a general rule, lesions dorsal to the spinal cord can be reached easily using a dorsal midline approach, whereas lesions ventral and lateral to the spinal cord may require more lateral dissection to provide the best trajectory to the tumor.

In our study, the most of the patients were female 24 (52.17%) and belong to the age group of 41-60 years (47.67%). Similar scenario regarding age and sex was reported in Islam MR et al.

The respondents of our study presented with variable types of symptoms, among which pain contributes as 100%, motor deficit in 40 cases (86.96%) and sensory deficit in 40 cases (86.96%). In our study, 27 cases were at dorsal spine involvement which was highest in location (58.7%). Regarding nature of tumor, the most frequent cases were Schwannoma 20 (43.48%) followed by meningioma 17 (36.96%), neurofibroma 8 (17.39%) and myxopapillary ependymoma 1 (2.17%).

The extent of tumor resection and decompression correlates directly with a good outcome. The extent of tumor excision was found to positively correlate with postoperative improvement. In our study, 36 cases (78.26%) were underwent operation with gross total removal of tumor, 8 cases (17.39%) were underwent operation with near-total removal of tumor and 2 cases (4.35%) were underwent operation with sub-total resection of tumor.

In our study, 19 patients (41.30%) were discharged at 7th post-operative day with significant improvement. In 16 patients (34.78%) of our study, immediate post-operative improvement were observed. There was improvement in 7 cases (15.22%) at first month after post-operative, there was no improvement in 3 cases (6.52%) deterioration in 1 cases (2.17%).

Postoperative complications vary 10-52%.

In our study, there were different type of post-operative complication like CSF leakage in 1 case (2.17%), wound infection in 2 cases (4.35%), pseudo-meningocele in 1 case (2.17%).

**Conclusion:**

To bring good surgical outcome, to reduce postoperative mortality and peri-operative morbidity in case of intradural extramedullaryspinal tumors, each neurosurgeon has to perform meticulous anatomical dissection mandatorily.

Besides this, thorough perioperative planning, meticulous microsurgical techniques and early mobilization & rehabilitation are essential for good clinical outcomes.
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SERUM LIPID STATUS IN PATIENTS WITH POLYCYSTIC OVARY SYNDROME

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Summary:

Objective: The aim of this study was to evaluate the serum lipid status in patients with PCOS and to compare the lipid status between PCOS patients and woman without PCOS.

Methods: This cross sectional analytical study was carried out in 50 women diagnosed as polycystic ovary syndrome on the basis of Rotterdam Criteria (group I) and 50 women of reproductive age group without polycystic ovary syndrome (group II) attending the outpatient department of Obstetrics and Gynaecology of Dhaka Medical College Hospital, Dhaka during the period of July 2013 to June 2015.

Results: The mean total cholesterol, triglycerides and LDL were significantly (p<0.005) higher in group I but mean HDL cholesterol was not significantly (p>0.05) associated with PCOS. Patients with raised total cholesterol: HDL ratio having the risk of developing dyslipidemia estimated to be 11.16 (95% CI = 3.9-33.1) times higher in PCOS patients than that in the group II. In multivariate logistic regression analysis of lipid profile, only raised LDL-C (>130 mg/dl) was found to be significantly associated with PCOS (p<0.05).

Conclusion: High LDL level was more associated with PCOS followed by TC, TG and TC:HDL ratio. This study demonstrated a higher level of dyslipidemia specially in PCOS with higher BMI.

Key words: Polycystic Ovary Syndrome, Dyslipidemia.

J Dhaka Med Coll. 2018; 27(2) : 209-214

Introduction:

Polycystic ovary syndrome (PCOS) is the most prevalent female endocrinopathy and the largest single cause of anovulatory infertility1. Its association with menstrual disturbance and altered hormonal parameters leads many affected women of reproductive age to attend a gynaecology, endocrinology or infertility clinic. The incidence of polycystic ovary syndrome (PCOS) is 5-10% in women of reproductive age1. Insulin resistance is a key pathophysiology of PCOS and dyslipidemia in women with PCOS may therefore be consistent with that found in the insulin resistant state: de-creased levels of high density lipoprotein-cholesterol (HDL-C) and apolipoprotein (Apo) A-I and increased levels of triglycer-ides (TG), ApoB and very low-density lipoprotein2,3,4. There may be a disturbance of adrenocortical function in the prepubertal and postpubertal phase of life initially, followed by a shift to the ovarian dominance, which is associated with a non-cyclical pattern of ovarian function5. The end result would be the increased androgen production in the ovary and the increased peripheral production of oestrogen5.

Women with polycystic ovary syndrome appear to be at increased cardiovascular risk due, in part, to dyslipidemia characterized by increased plasma triglyceride and reduced high density lipoprotein (HDL) cholesterol levels.

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Received: 12 May 2018 Revision: 26 August 2018 Accepted: 08 September 2018
A recent study of premenopausal women showed that those with the polycystic ovary syndrome had a higher prevalence of coronary artery calcification as detected by electron-beam computed tomography\(^7\). A predisposition to macrovascular disease and thrombosis in women with the polycystic ovary syndrome has also been described\(^8,9\).

Both insulin resistance and hyperandrogenemia contribute to this atherogenic lipid profile. Testosterone decreases lipoprotein lipase activity in abdominal fat cells and insulin resistance impairs the ability of insulin to exert its antilipolytic effects\(^10,11,12\). Insulin resistance leads to increased catecholamine induced lipolysis in adipocytes resulting in increased free fatty acids in circulation. This results in increased VLDL production by the liver resulting in hypertriglyceridemia\(^13\). Efforts should be directed toward reducing obesity in PCOS to improve the metabolic disturbance in addition to ameliorating the presenting symptoms\(^13\).

**Materials and Method:**
This cross sectional analytical study was carried out in the Obstetrics and Gynaecology department of Dhaka Medical College, Dhaka, during July 2013 to June 2015 with an aim to evaluate the lipid status in patients with PCOS and to compare the lipid status between PCOS patients and women without PCOS.

According to the Rotterdam criteria (ASRM/ESHRE, 2003), patients with following characteristics were included in the study as PCOS patients.

1. Oligomenorrhoa (Menstrual cycle interval more than 35 days but less than 6 months).
2. Elevated LH level and LH/FSH ratio e” 2 with one or some of the following features:
   - Characteristic enlargement of ovaries by USG.
   - Hirsutism
   - Obesity
   - Infertility
   - Stria

In this study, dyslipidemia were considered if Total cholesterol (TC)/HDL ratio is>4.5. A total of 50 women diagnosed as polycystic ovary syndrome on the basis of Rotterdam criteria considered as group I and 50 women of reproductive age group without polycystic ovary syndrome considered as group II attending the out patient department were enrolled in this study.

Patients with adrenal or ovarian androgen producing tumours, hypothyroidism, overt diabetes, cardiovascular disease, Cushing’s syndrome, familial hypercholesterolemia or hypertriglyceridemia, hyperprolectinaemia, postmenopausal women, pregnant and lactating women, those on lipid lowering drug, androgen containing drug, oral contraceptives, cortisone, synthetic progestogen or danazol were excluded from the study.

Data were collected using a structured questionnaire containing all the variables of interest, by interview and laboratory investigations. Statistical analyses were carried out by using the Statistical Package for Social Version (SPSS) version 20.0 for Windows (SPSS Inc., Chicago, Illinois, USA). A descriptive analysis was performed for all data. The mean values were calculated for continuous variables. The quantitative and qualitative observations were indicated by frequencies, percentages with 95% CI. Chi square test and odds ratio with 95% CI were used to analyze the categorical variables shown with cross tabulation and unpaired t-test was used to analyze the continuous variable expressed as mean (±SD). Multiple logistic regression analysis was done for prediction of dyslipidaemia in PCOS. A P-value was considered to be statistically non significant if >0.05 and statistically significant if d” 0.05.

**Ethical consideration:**
Prior permission was taken from Ethical Review Committee (ERC), Dhaka Medical College (DMCH) Hospital, Dhaka to undertake this study. Keeping compliance with Helsinki Declaration for Medical Research Involving Human Subjects 1964, all the study subjects were informed verbally about the study design, the purpose of the study and potential benefits for the community. PCOS patients and women
without PCOS who gave informed consent to participate in the study were included as study sample.

**Results:**
Majority 19 (38.0%) patients belonged to age 26-30 years in group I and 18(36.0%) in group II. Mean age was found 27.98±4.5 years in group I and 26.92±4.8 years in group II. Mean age difference was not statistically significant (p>0.05) between two groups. Almost three-fourth (74.0%) patients belonged to BMI e°25.0 kg/m² in group I and 38(76.0%) patients belonged to BMI 18.5-24.9 kg/m² in group II (table 1). Mean BMI was found 28.0±3.7 kg/m² in group I and 24.4±2.8 kg/m² in group II. Mean BMI was statistically significant (p<0.05) between two groups. Mean total cholesterol was found 217.7±21.8 mg/dl in group I and 180.5±17.7 mg/dl in group II. Mean triglycerides were found 193.4±25.6 mg/dl in group I and 140.5±12.8 mg/dl in group II. Mean LDL-cholesterol was found 171.0±21.0 mg/dl in group I and 117.6±28.4 mg/dl in group II which were statistically significant (p-value, 0.001) but mean HDL-cholesterol was not statistically significant (p>0.05) between two groups. (Table 2)

The risk of developing dyslipidemia with raised total cholesterol, triglyceride, LDL and total cholesterol / HDL ratio was estimated to be 47.25(95% CI = 12.69-100.0), 23.92(95% CI = 7.58-79.70), 82.25(95% CI = 18.02-100.0) and 11.16(95% CI = 3.90-33.10) times higher in PCOS patients than that in the group II. More than two-third (68.0%) of the patients had raised total cholesterol: HDL ratio in group I and 8(16.0%) in group II. (Table 3) In multivariable logistic regression analysis of lipid profile, only raised LDL-C (>130 mg/dl) was found to be statistically significant (p < 0.05). Other lipid profiles were not significantly associated with PCOS. (Table 4)

| Table 1 |
| Distribution of the study patients by BMI (n=100) |
|--------------------------------------------------|
| **BMI (kg/m²)** | Group I (n=50) | Group II (n=50) | OR | 95% CI | P |
|-----------------|----------------|-----------------|----|--------|----|
| ≥25.0 (over weight & obese) | 37 | 74.0 | 12 | 24.0 | 9.01 | 3.34-24.96 | a0.001s |
| 18.5-24.9 (normal) | 13 | 26.0 | 38 | 76.0 | b0.001s |
| Mean±SD | 28.0±3.7 | 24.4±2.8 | |
| Range (min-max) | 20.3-34.7 | 20.3-32.1 | |

s= significant, OR= odds ratio, aP value reached from chi square test
bP value reached from unpaired t-test

| Table-II |
| Distribution of the lipid profile of study patients (n=100) |
|----------------------------------------------------------|
| **Lipid profile** | Group I(n=50) | Group II(n=50) | P value |
|-------------------|----------------|----------------|--------|
| Total cholesterol (mg/dl) | Mean ±SD | Mean ±SD | 0.001s |
| Range (min-max) | 160 | -1260 | 130 | -210.0 |
| Triglycerides (mg/dl) | 193.4±25.6 | 140.5±12.8 | 0.001s |
| Range (min-max) | 126.0±1218 | 120.0 | -176.0 |
| HDL-cholesterol (mg/dl) | 46.84±4.0 | 47.35±6.4 | 0.633ns |
| Range (min-max) | 38.0 | -56.0 | 32.0 | -60.0 |
| LDL-cholesterol (mg/dl) | 171.0±21.0 | 117.6±28.4 | 0.001s |
| Range (min-max) | 124.0 | -202.0 | 68.0 | -178.0 |

s=significant; ns=not significant P value reached from unpaired t-test
Table-III

Risk of developing dyslipidemia in subjects with PCOS (n=100)

| Lipid profile            | Group I(n=50) | Group II(n=50) | OR       | 95% CI (lower-upper) | P value |
|--------------------------|---------------|----------------|----------|----------------------|---------|
| Total cholesterol (mg/dl)|               |                |          |                      |         |
| >200                     | 42            | 5              | 47.25    | 12.69-100.0          | 0.001^a |
| ≤200 (normal)            | 8             | 45             |          |                      |         |
| Triglycerides (mg/dl)    |               |                |          |                      |         |
| >150                     | 42            | 9              | 23.92    | 7.58-79.70           | 0.001^a |
| ≤150 (normal)            | 8             | 41             |          |                      |         |
| HDL-cholesterol (mg/dl)  |               |                |          |                      |         |
| <40                      | 1             | 5              | 0.18     | 0.01-1.73            | 0.092^ns|
| ≥40 (normal)             | 49            | 45             |          |                      |         |
| LDL-cholesterol (mg/dl)  |               |                |          |                      |         |
| >130                     | 47            | 8              | 82.25    | 18.02-100.0          | 0.001^a |
| ≤130 (normal)            | 3             | 42             |          |                      |         |
| Total cholesterol: HDL ratio|           |                |          |                      |         |
| >4.5 (dyslipidemic)      | 34            | 8              | 11.16    | 3.90-33.10           | 0.001^a |
| ≤4.5 (normal)            | 16            | 42             |          |                      |         |

s=significant; ns=not significant, P value reached from chi square test

Table-IV

Multivariable logistic regression analysis of Lipid Profile (n=100)

|                          | B     | S.E  | P value | OR       | 95% CI for OR |
|--------------------------|-------|------|---------|----------|---------------|
|                          |       |      |         | Lower    | Upper         |
| LDL-cholesterol (>130 mg/dl) | 3.268 | 0.865| 0.001^a| 26.3     | 4.8-143.1     |
| Triglycerides (>150 mg/dl)  | -2.848| 2.127| 0.181^ns| 0.1     | 0.0-3.7       |
| Total cholesterol (>200 mg/dl) | 2.728 | 1.508| 0.070^ns| 15.3    | 0.8-293.8     |
| HDL-cholesterol (<40 mg/dl) | -2.517| 1.468| 0.086^ns| 0.1     | 0.0-1.4       |
| Total cholesterol/HDL ratio (>4.5 mg/dl) | 1.026 | 2.019| 0.611^ns| 2.8     | 0.1-145.8     |

s=significant; ns= not significant

Discussion:

Insulin resistance is a key pathophysiology of PCOS and dyslipidemia in women with PCOS may therefore be consistent with that found in the insulin resistant state: decreased levels of high-density lipoprotein-cholesterol (HDL-C) and apolipoprotein (Apo) A-I, and increased levels of triglycerides (TG), ApoB and very low-density lipoprotein (VLDL) ⁴,¹⁴.

Three-fourth (74.0%) patients belonged to BMI ≥25.0 kg/m² in group I and 38(76.0%) patients belonged to BMI 18.5-24.9 kg/m² in group II. Mean BMI was found 28.0±3.7 kg/m² in group I and 24.4±2.8 kg/m² in group II. Mean BMI was statistically significant (p<0.05) between two groups. Overweight or obese had 9.01 times increased risk to develop PCOS with 95% CI 3.34-24.96% in this study. Similarly, in another study the mean BMI was 26.76 ±6.08 kg/m² in PCOS group and 24.73±5.66 kg/m² in control group¹⁵. The difference was statistically significant (p<0.05) between two groups. On the other hand, Manjunatha et al. (2014), Fulghesu and Magnini (2012) and Juhás et al. (2012) observed statistically significant difference between two groups regarding the mean BMI¹⁶, ¹⁷, ¹⁸. Rotterdam guidelines suggested evaluation for the metabolic syndrome and indirectly indicated
the need to measure only HDL-C and triglycerides with relatively little attention to other lipid parameters. However, during past decade, a large number of studies found an increase of LDL-C levels in women with PCOS\textsuperscript{28, 19}. Therefore, recently both the American College of Obstetricians and Gynecologists (ACOG) (ACOG practice bulletin 2009) and the Androgen Excess and PCOS Society (Wild et al. 2010) guidelines have recommended that women with PCOS should have a complete fasting lipid and lipoprotein evaluation as part of their cardiovascular risk assessment\textsuperscript{20, 21}.

In this study, mean total cholesterol was 217.7±21.8 mg/dl varied from 160 – 260 mg/dl in group I and 180.5±17.7 mg/dl varied from 130 – 210 mg/dl in group II. The mean total cholesterol was significantly (p value-0.001) higher in group I. Similarly, Manjunatha et al. (2014) showed mean serum total Cholesterol 202.16 ±16.12 mg/dl in study group and 170.8±9.87 mg/dl in control group.

Mean triglycerides was 193.4±25.6 mg/dl varied from 126 – 218 mg/dl in group I and 140.5±12.8 mg/dl varied from 120 – 176 mg/dl in group II which was significantly (p-value 0.001) higher in group I. Manjunatha et al. (2014) found that the mean serum triglycerides was 120.13±12.88 mg/dl and 98.34±18.19 mg/dl in study group and control group respectively\textsuperscript{16}. The difference was statistically significant (p<0.05) between two groups, which is consistent with the current study.

Mean LDL-cholesterol was 171.0±21.0 mg/dl varied from 124 – 202 mg/dl in group I and 117.6±28.4 mg/dl varied from 68 – 178 mg/dl in group II which was significantly (p-value 0.001) higher in group I.

In this present study, it was observed that the mean HDL-cholesterol was not significantly (p>0.05) associated with PCOS. Manjunatha et al. (2014) found that the mean HDL-Cs were 39.16±6.01 mg/dl and 55.45±4.11 mg/dl in study group and control group respectively\textsuperscript{16}. The difference was statistically significant (p<0.05) between two groups which is comparable with the current study.

Al-Hakeim et al. (2009) mentioned that there is a significant increase (p<0.05) in total cholesterol, TG and LDL-C in PCOS patients as compared with control group while HDL-C and serum calcium is decreased significantly in patients group in comparing with control group\textsuperscript{22}. Similar observations were also reported by Wild et al. (2010), Moran et al. (2010); Manjunatha et al. (2014)\textsuperscript{10, 23, 16}.

However, some other studies showed different profiles. Bickerton et al. (2005) found that there were no significant differences in lipid or lipoprotein concentrations between the women with PCOS group and controls\textsuperscript{24}. Yilmaz et al. (2005) found no difference in serum TC, LDL-C, TG, levels between PCOS and control groups, whereas HDL-C was lower\textsuperscript{25}. Vrubikova et al. (2003) showed serum TC and TG did not differ significantly between PCOS and healthy women groups while HDL-C was lower and LDL-C was higher in PCOS than in controls\textsuperscript{26}.

In this study, the frequency of raised total cholesterol, raised triglycerides and raised LDL were higher in group I compared to group II. More than eighty percent (84.0%) of the patients had raised total cholesterol and raised triglyceride. The risk of developing dyslipidemia was higher in PCOS patients than that in group II.

Wild et al. (2011) showed triglyceride levels were 26 mg/dl (95% confidence interval [CI] 17–35) higher and HDL-cholesterol concentrations were 6 mg/dl (95% CI 4–9) lower in women with PCOS\textsuperscript{27}. Iuhas et al. (2012) reported that both total cholesterol and LDL-cholesterol were positively associated only with the presence of PCOS (p<0.05 for total cholesterol, p<0.05 for LDL-cholesterol)\textsuperscript{18}. No association was observed between HDL-cholesterol levels and the presence of PCOS.

Conclusions:
This study was undertaken to evaluate the lipid status in patients with polycystic ovary syndrome. Most of the patients were in 3\textsuperscript{rd} decade. High LDL level was more associated with PCOS followed by TC, TG and TC:HDL ratio. This study demonstrated a higher level of dyslipidemia specially in PCOS with higher BMI.
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Abstract
Lactobacillus is a genus of Gram-positive, facultative anaerobic or microaerophilic, rod-shaped, non-spore-forming bacteria. In human, they constitute a significant component of microbial flora at a number of body sites, such as the digestive system, urinary system, and genital system. Lactobacillus species are normally a major part of the vaginal microbial flora. As a normal bacterial flora of the vagina the organisms are typically considered contaminants when cultured from urine specimens of female patients. Here we describe the case of a female patient with chronic pyuria and urinary tract symptoms in which Lactobacillus spp. was determined to be the causative microorganism. After proper treatment the patient gets well soon.

J Dhaka Med Coll. 2018; 27(2) : 215-217

Case Report
A seventy years old lady admitted to Asgar Ali Hospital with incontinence of urine, recurrent peripheral vertigo and recurrent UTI. She had history of subtotal thyroidectomy, osteoporosis of knee joint and unable to talk and walk and several other co-morbidities including diabetes mellitus, hypertension, dementia and hyperlipidimia. Data was collected from HMIS Internet support of our hospital, the patient took an executive visit for her UTI in January 8th 2017, her urine revealed the evidence of UTI and culture yielded the growth of Esch.coli \( >10^5 \)CFU/ml which was not an ESBL, and was sensitive to other drugs. In 18th of the same month the patient came to OPD, that time she complained lower abdominal pain and incontinence and treated with Meropenem. Her urine examination was done on 25th January 2017, and urine still revealed 40-50 pus cells/HPF. In 22nd February, patient again came to OPD with same complains. Her urine had 8-10 pus cells and culture yielded Klebsiella pneumoniae 105 CFU/ml and which was a CRE, she treated with nitrofurantoin. She visited again to OPD in March 2017, Ecsh.coli and Enterobacter spp were isolated from her urine in that occasion, both having 104 CFU/ml, Enterobacter spp. was ESBL positive. After that she visited to OPD for 2 occasions in month May and 10th November with same complains and same number of pus cells but culture yielded no growth and her symptoms such as nocturia, increase frequency and dysurea did not resolved. In November 19th of 2017 she came to emergency, was not vitally stable then immediately transferred to ICU. Before starting of antibiotics urine was sent for RME, Gram stain and culture and sensitivity. After sending the sample, injection ceftriaxone was started. Her urine showed plenty of pus cells and Gram stain revealed plenty of large Gram positive bacilli both in centrifuge and uncentrifuge urine. Due to confusion regarding organism, after removal of the catheter, re-catheterization had been done, and sample was collected from new catheter after proper irrigation with normal saline and maintaining of strict aseptic precaution. Urine examination such as RME, Gram stain and culture were repeated. Same findings were observed.

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Urine was inoculated in blood, Mc Conkey’s and chocolate agar media. After 48 hours of incubation with 5% CO2, pure faint alpha hemolytic colonies appear on blood and chocolate agar media and colony count was $10^5$ CFU/ml there was no mixed growth and no growth on Mc Conkey’s agar media. Gram stain was done from the colonies, Gram positive large bacilli appeared which was catalase negative, oxidase negative. On the basis of these characteristics together and very characteristics Gram stain morphology, the organisms was presumptively identified as a *Lactobacillus* species, which was sensitive to penicillin, ampicilllin, ceftriazone, clindamycin, linezolid, rifampcin and gentamycin, and resistant to tetracycline, cefixime, meropenem, cotrimoxazole, nitrofurantoin, vancomycinc, ciprofloxacin and levofloxacin. Lactobacilli spp. are phenotypically resistant to vancomycin. Patient was treated with injectable ceftriaxone followed by oral Cefixime. On 25/11/17 urine RME, Gram stain and culture were done, revealed 5-6/ pus cells in per HPF and urine Gram stain and culture did not show any evidence of organisms.

**Discussion**

Urinary tract infections caused by *Lactobacillus* spp. are exceedingly uncommon. Our review of the literature revealed previously published case report of a 66-year-old diabetic male who developed acute renal failure and sepsis in a setting of ureteral obstruction. The patient’s urine and blood yielded pure cultures of *Lactobacillus gasseri*, and following treatment with amoxicillin, the patient recovered fully. Another report showed An 85 years old female with recurrent urinary tract infections, lastly lactobacilli was isolated from her urine which was also identified by bacterial 16S rRNA gene sequencing. Analysis of the isolate’s 16S rRNA gene sequence revealed it to be *Lactobacillus debrueckii*. Lactobacilli are rod-shaped bacteria that are part of the intestinal and vaginal normal flora, and are usually considered beneficial because they produce vitamin K, the enzyme lactase that helps to digest dairy products, and anti-microbial substances, such as acidolin and acidolphillin, which prevent the growth and colonization of harmful bacteria. However, in rare cases, lactobacilli can cause serious infections of the bloodstream, urinary tract and internal organs, especially in immunocompromised individuals. Lactobacilli are generally considered to be of low virulence, rarely causing infection in humans. Blood stream infection has been described primarily in immunocompromised patients following dental manipulations, oral trauma, or endoscopic procedures and as a result of both gastrointestinal tract fistulas and gynecologic neoplasms. Subsequent development of endocarditis has been observed in bacteremic patients with preexisting valvular defects. Lactobacilli have also been shown to cause neonatal meningitis after vertical transmission of organisms from mother to infant during birth.

Antibiotics are the mainstay of treatment for lactobacillus infections. Penicillin is the common antibiotic used and can be administered orally or intravenously, depending on the condition of the patient. According to John Hopkins Point of Care Information Technology Center, the typical duration of penicillin treatment is about six weeks for infections of the bloodstream and heart. Penicillin and its derivative ampicillin can also be used to treat lactobacilli infections of stomach. It is also important to note that almost all the strains of lactobacilli are resistant to vancomycin, so it is not recommended to treat lactobacilli infections.

For patients with penicillin allergies, gentamicin is the alternate choice, and can be administered intravenously to patients with blood and heart infections. The John Hopkins Point of Care Information Technology Center also prescribes oral clindamycin to treat gum and teeth infections caused by lactobacilli species.

**Conclusion**

In conclusion, we report a case of a patient with recurrent urinary tract infections in which *Lactobacillus spp.* was determined to be the etiologic agent. *Lactobacillus* spp. should not be regarded as simply a contaminant but as an unlikely, yet significant, cause of urinary tract inflammation and symptoms.
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POLYCYTHAEMIA RUBRA VERA WITH INCISIONAL HERNIA SURGERY-A VERY RARE CASE REPORT

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Abstract:
Polycthyemia rubra vera is a chronic myeloproliferative disorder that is characterized by excessive red cell production and unlike other forms of polycythemia, it can cause both bleeding and thrombosis in the same patient. Only few cases have been reported in the literature where polycythemia rubra vera with surgery was performed successfully. The ideal peri-operative management is currently unknown. Here we present a case of 50 yrs old lady with polycythemia rubra vera underwent open mesh repair for incisional hernia. After operation, the patient developed hemorrhagic complications needing resuscitation with blood and plasma expander. The patient was managed efficiently. Considering its very rarity, we are reporting the case.

Key words: Polycythemia vera (PV).

Introduction:
Polycythemia vera (PV) is presented by both spontaneous thrombosis and hemorrhage1. In general, the thrombotic tendency has been more discussed and relatively little emphasis has been placed on the hemorrhagic aspect. Burris and Arrowsmith have recently published their experience with surgery on 68 patients with PV2. This is the only report in the recent surgical literature which has discussed this problem. They observed the thrombotic tendency to be the most common postoperative complications and did not find any instance of hemorrhagic events. The purpose of this paper is to present a case of PV in which the postoperative course was complicated by hemorrhage and to suggest a more comprehensive preoperative evaluation and optimization which would help to prevent both hemorrhagic and thrombotic complications.

Primary polycythemia (polycythemia vera) is considered as a hematopoietic stem cell disorder giving rise to proliferation of a clone of hematopoietic precursors leading to an excess production of erythrocytes with thrombocytosis and leucocytosis in some patients. Though the incidence of complications that are associated with polycythemia vera (PV) is found low, the risk of perioperative morbidity and mortality is found to be substantial if complications occur. Attention has always been on other hematological disorders, especially anemia inspite of lack of serious complications associated with anemia in perioperative period. Shift of attention towards less frequently encountered bleeding disorders such as PV should draw attention of not only the anesthesiologist but also the physicians and surgeons directly concerned with the patient. Normal stem cells are found in the bone marrow of patients with PV besides abnormal clonal

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stem cells which interfere with or suppress normal stem cell growth and maturation. The origin of the stem cell transformation remains unknown. Several studies suggest that a mutation on the Janus kinase-2 gene (JAK2) is the most likely candidate gene involved in PV pathogenesis, as JAK2 is directly involved in the intracellular signaling following exposure to cytokines to which PV progenitor cells display hypersensitivity. Polycythemia can be divided in two groups: PV (PV primary or true) and non vera types. PV is considered as a disorder of the blood-producing cells of bone marrow which results in overproduction of red blood cells. In polycythemia vera, the extra mass of red blood cells increases the volume of blood and makes it more viscous, as a result it flows less easily through small blood vessels. The cause is unknown. Non Vera types are further sub-dived into secondary and relative polycythemia. Secondary are usually caused by oxygen deprivation, as seen in living at high altitudes, smoking, chronic pulmonary disease and cyanotic heart disease. Relative polycythemia occurs mainly as a result of dehydration that is caused by the use of diuretics, or, drinking too little fluids or sweating a lot. All the non vera types have underlying causes and are not true PV. Though the incidence of PV is not constant worldwide, approximately 1.9 in 100,000 (person each year) are diagnosed each year. It can occur in all age groups though incidence goes up with age.

Case report:
A 50 yrs old lady coming from Norshingdi admitted into BSMMU on 12 July 2016 for open mesh repair. She has been also suffering from PV for last 1 yr and was on medical therapy and regular phlebotomy. Her past history included hypertension and carrier of hepatitis-C virus for last 2 yrs without any hepatic complications. She had a history of open total abdominal hysterectomy 2 yrs ago without any significant events. She had no history of smoking, COPD, heart disease. She is a housewife. Her weight is 50 kg and height is 162 cm.

On examination, She was of average body built, having plethoric face and conjuctival injection. She had an overall dusky cyanotic complexion. Her pulse was 60/min and BP -120/80 mmHg. Splenomegaly was found 3 cm from left costal margin along its long axis. A slightly tender spherical swelling present in right iliac fossa at the right end of previous pfannestial incision scar which was reducible and gap about 3x4 cm . Pre-operative investigation findings are listed in Table I.  

| Lab variable       | Value     | Normal range       |
|-------------------|-----------|--------------------|
| Hb                | 17.2 gm/dl| 11-15 gm/dl       |
| WBC               | 13x10⁹/l  | 4-11x10⁹/l        |
| Platelet count    | 350x10⁹/l | 150-450x10⁹/l     |
| ESR               | 34 mm in 1st hour | Up to 20 mm in 1st hour |
| Hct               | 79%       | 35-45%             |
| PT                | 14 sec    | 12-14 sec         |
| INR               | 1.1       | 0.8-1.2            |
| APTT              | 32 sec    | 32-35 sec         |
| Bleeding time     | 03 min    | 2-7 min            |
| Cloting time      | 83 u/l    | 5-11 min           |
| Albumin           | 39 gm/l   | 30-35 gm/dl       |
| Alkaline phosphatase05 min | 15-65 u/l |                |
| SGPT              | 23 u/l    | 30-60 u/l         |
| SGOT              | 30u/l     | 30-60 u/l         |
| HBsAg             | Negative  |                   |
| AntiHcv           | Positive  |                   |
| PCR for HCV RNA   | Undetectable |                  |
| S.Creatinine      | 0.76 mg/dl| 0.6-1.2 mg/dl    |
| RBS               | 5.5 mmol/l|                   |
| USG of W/A        | Splenomegaly |                |
| JAK-2             | Positive  |                   |

After proper pre-operative optimization, she underwent open prolene mesh repair by on-lay position technique. Considerable attention was paid to meticulous technique and haemostsis. There was no preoperative adverse events.
Immediate recovery room, patient’s vital sign was within normal limit but drain tube collection was 100ml (2 hours after operation) which was fresh blood and about 1400 ml blood drained on “0” POD (postoperative day). We consult with hematologist. Two unit fresh blood transfused and blood sent for coagulation profile. Laboratory exam revealed coagulation profile including bleeding time, clotting time, prothrombin time, APTT, FDP, D-dimer, plasma fibrinogen and von Willebrand factor were normal but it was noted that clot did not retract and easily dispersed.

On 1st and 2nd POD, fresh blood was seen through drain tube that measured about 1200 ml and 800ml respectively. On 4th POD, drain tube collection was nil but haematoma formed beneath subcutaneous layer. On 7th POD, she was taken to operation theatre and clot was evacuated under general anaesthesia. On careful inspection, no bleeding point could be found. After 2nd time exploration, patient was stable, minor sero-sanguinous fluid drained through drain tube but uneventful recovery.

**Discussion**

There are several identified causes of morbidity and mortality associated with PV. Thrombosis is seen in 15-60% of patients, depending on control of the disease. It is the principal reason of death in 10-40% of patients. Venous thromboses have caused pulmonary emboli, renal failure from renal vein or renal artery thrombosis, intestinal ischemia resulting from mesenteric vascular thromboses, or peripheral arterial emboli. Hemorrhagic complications occur in 15-35% of patients and result in death in 6-30% of these patients. Peptic ulcer disease is found in association to PV at a 3- to 5-fold higher rate in compared to the general population. This has been due to increased histamine serum levels. Myelofibrosis and pancytopenia may occur in 3-10% of patients, usually in late stage of disease, which can be considered as the spent phase of PV. In these cases, bleeding and infectious complications may become the most serious health threats, and red cell transfusion may be required to maintain adequate red blood cell counts and to improve fatigue and other anemia-related symptoms. Acute leukemia or a myelodysplastic syndrome develops in 1.5% of patients who are treated with phlebotomy alone. The risk of transformation rises up to 13.5% in 5 years with treatment using chlorambucil and up to 10.2% within 6-10 years in patients treated with P-32 (radioactive Phosphorus- 32). At 15 years, transformation risk for Hydroxyurea (HU) is 5.9%, which, although not statistically significant, is worrisome.

Diagnostic criteria by polycythaemia vera study group are as follows - **Category A** (total red blood cell mass – in males, more than or equal to 36 mL/kg and in females, greater than or equal to 32 mL/kg, arterial blood oxygen saturation greater or equal to 92% and splenomegaly) and **Category B** (thrombocytosis with platelet count greater than 400,000/ìL, leukocytosis with a white blood cell count greater than 12,000/ìL, increased leukocyte alkaline phosphatase (ALP) greater than 100 U/L, serum vitamin B-12 concentration more than 900 pg/mL or binding capacity more than 2200 pg/mL). The diagnosis is established with A1 plus A2 plus A3 or A1 plus A2 plus any 2 criteria from category-B. With the establishment of polymerase chain reaction (PCR)-based methods for detecting the JAK2 V617F mutation, this
may become the first molecular diagnostic marker for PV. Venection of 300–500 mL is performed weekly or twice weekly to achieve a haematocrit of less than 0.45, and thereafter every 3–6 months to maintain the haematocrit at this level. Iron deficiency may occur and requires cautious treatment. Low-dose aspirin (100 mg/day) reduces thrombotic complications. Cytoreductive therapy should be considered when venesection is poorly tolerated. There is symptomatic or progressive splenomegaly, thrombocytosis or the presence of symptoms that may indicate disease progression (e.g. night sweats; weight loss).

It is preferred to maintain blood results at reference range levels by regular evaluation and treatment. Fasting for prolonged time without adequate replacement should be avoided as this can lead to dangerously high hematocrit levels in patients already predisposed to hypercoagulability. Fasting, even for not more than 4-6 hrs should always be accompanied by adequate pre operative hydration. During operation the patients’ baseline hypercoagulability rises by a hundred fold. Aggressive hydration should be continued throughout the surgery and adequate urine output must be ensured. Emergent surgery may require intraoperative phlebotomies. This must be done with extreme caution taking care to replace lost volume and avoiding vasoconstriction from volume depletion that can risk multiorgan ischemia or intraoperative thrombus formation.

Monitoring using central venous line is advised in all patients to monitor not only fluid status but also for the provision of a large gauge central venous line for rapid infusion rates that may be required in such patients. Monitoring the vitals and clinical evaluation of patient for the possibility of stroke or hemorrhage should continue from the intraoperative through the postoperative period.

All patients with PV who present for surgery, either elective or emergency, are advised to be admitted to the intensive care unit in the immediate post operative period for minimum forty eight hours with strict vitals observation and concurrent clinical and laboratory evaluation. Early ambulation and aggressive use of analgesics preferably opioids is recommended to prevent stasis of blood flow and discourage formation of deep venous thrombosis to which these patients are at increased risk. Compression stockings to avoid clot formation and use of peripheral local anesthetic blocks to relieve postoperative pain and thus allow early ambulation should be undertaken in these patients.

**Conclusion**

Patients diagnosed with PV are at increased risk of perioperative thrombosis and hemorrhage. Follow-up in the post-operative period may be complicated by pulmonary or cerebral thrombosis or embolisms or hemorrhage. It might be concluded that PV is a risk factor for haemorrhagic events that requires meticulous attention to perioperative assessment of patient blood profile and subsequently tailored treatment strategies in order to avoid substantial morbidity and mortality.

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