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About the Journal

Liaquat Medical Research Journal is the print, online, double blind, peer-reviewed, quarterly released journal devoted to publishing innovative biomedical research and scholastic / academic content from all fields of medical sciences, concentrating on innovative clinical, diagnostic and perspective preventive research.

Aims & Scope

The Journal aims to publish research in all fields of clinical, diagnostic, experimental & preventive areas related to medical sciences to disseminate scholastic work among clinicians and scientists around the globe.

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Editorial

Global burden of gynecological cancers

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ABSTRACT
Gynecological cancers include malignant tumours arising from reproductive organs in women including ovaries, uterus, vagina vulva, and cervix. Cervical cancer is reported to be the most common cancer while the vagina is reported to have the lowest incidence all around the world. According to the World Health Organization report Asia has the highest rate of gynecological cancers followed by Africa, Europe, Latin America, North America, and the lowest rate is observed in Oceania. The rate was predicted to rise in the upcoming years. Thus appropriate strategies are needed to be adopted to control disease outcomes and adopt preventive strategies.

Key Words: Gynecological cancers, global burden

INTRODUCTION

Gynecological cancers include a group of malignant tumours arising from ovaries, uterus, vagina, cervix, and vulva. This also includes cancers arising from fallopian tubes but it is very rare. These are exclusively women's cancers, and given their anatomical location, these cancers are diagnosed late resulting in poor survival with exception of cervical cancer where screening is available with a chance of early diagnosis. Gynecological cancers accounted for 671 875 reported deaths in 2020. The incidence and mortality are predicted to be doubled by 2040. This editorial aimed to discuss the current global burden of gynecological cancers, future predictions, and discuss strategies to prepare for this upcoming major health issue(1,2).

Figure 1 presents reported rates of gynecological cancers in all continents, where cervical cancer remains at the top among Asian, African and, Latin American populations while in Europe and North American regions and Oceania uterine cancer has been observed to be the most common malignancy. Region-wise distribution of cancers is given in Figure 2 and 3. Cervical cancer not only shows high incidence but high mortality is also being reported due to cervical cancer. It can be debated that the high incidence of cervical cancer could be reported due to national screening programs, but looking at the high incidence among Asian and African women it doesn't seem to be applicable due to the lack of nationwide screening facilities in Asia and Africa. There is another point worth mentioning here that these are the reported cases or those who seek treatment; but among Asian and African women it is also important that patients who were registered at a cancer hospital were the cases included here in statistical data, with a potential chance of excluding those patients who remained undiagnosed or did not reach cancer hospitals for treatment. Given the limited resources in many Asian and African countries, many women die of cancer without getting appropriately diagnosed. Also due to

the anatomical location of the reproductive organs of women, these tumours grow bigger without producing any specific signs or symptoms of cancer resulting in late diagnosis and high mortality. Till to date, cervical cancer was the exception where screening is possible. However ovarian mass can be easily diagnosed on ultrasound; a non-invasive easily available facility which can be potentially used for early diagnosis. However, results of the studies testing per-vaginal ultrasound and additional serum level of CA125 could not show promising results due to the high rate of false positives(3,4). Though there is a potential chance of influence of operative dependency of ultrasound.

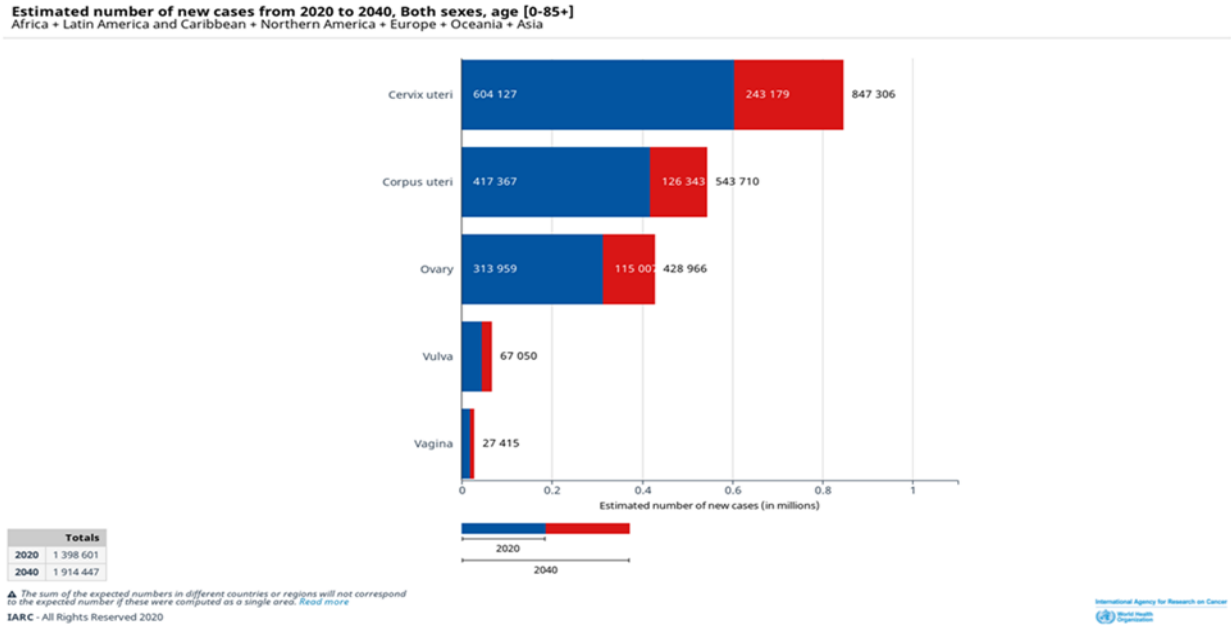

Figure 1: Distribution of Gynecological cancer- Globocan data(2) (adopted from Globocan 2020 data)

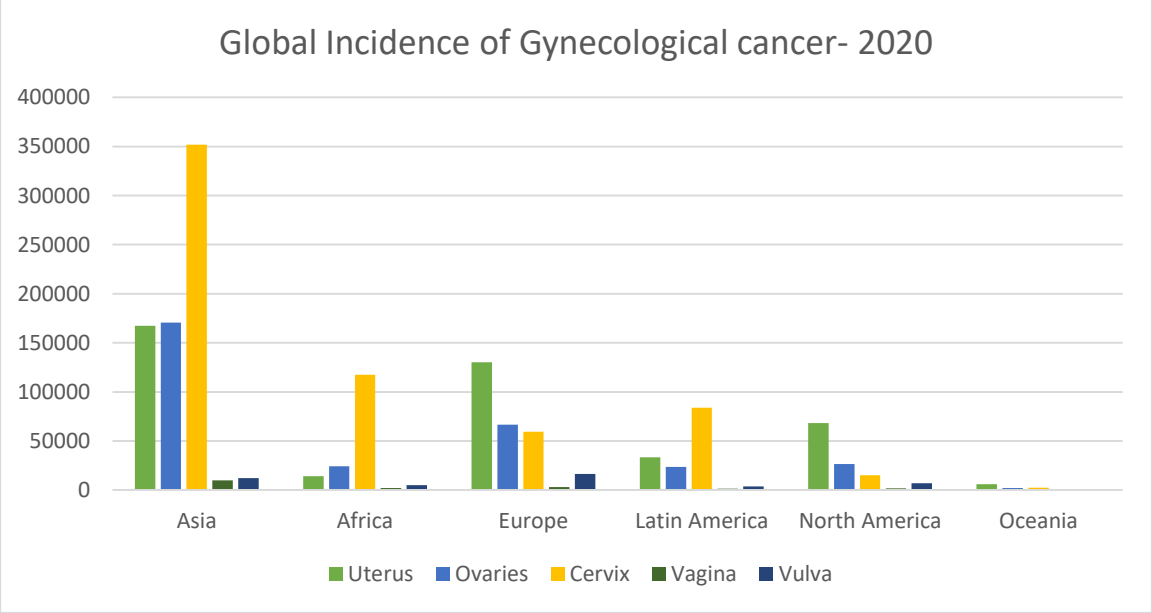

Figure2: Global Incidence of Gynecological cancers- 2020(2) **(adopted from Globocan 2020 data)**

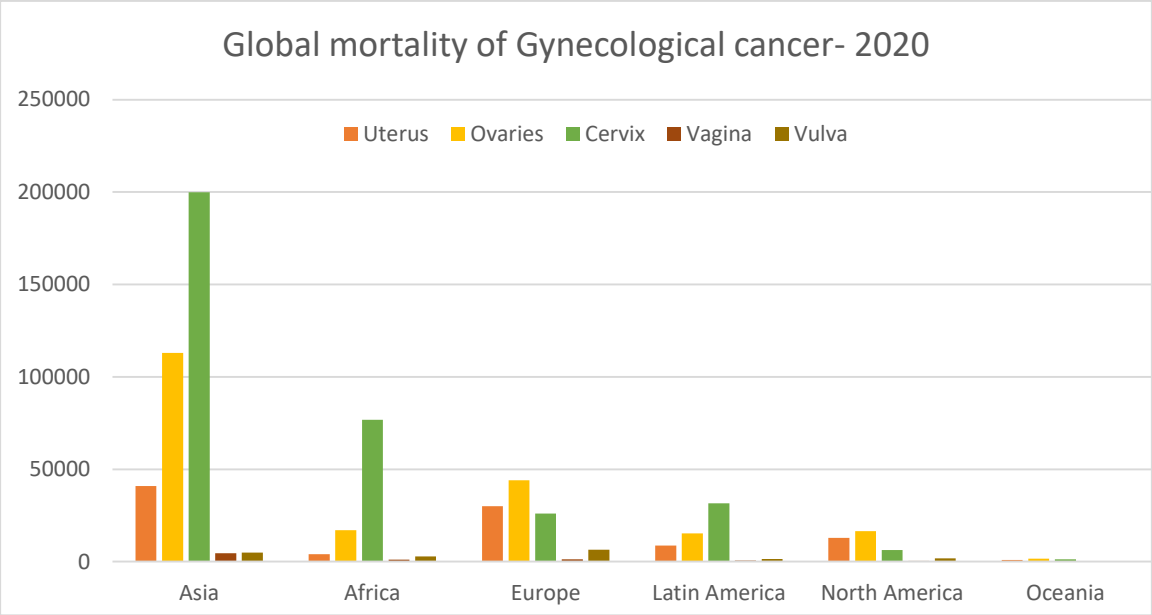

Figure 3: Global mortality of Gynaecological cancers- 2020(2) **(adopted from Globocan 2020 data)**

Ovarian cancer has shown an association with BRCA genes mutations, which is a known risk factor. Thus a combination of ultrasound, serum markers, and genetic testing can potentially provide a robust screening and prediction system for ovarian cancer. Thus instead of just one modality; if other markers are added in combination with genetic testing will increase its sensitivity and specificity. Serum analysis and vaginal – abdominal ultrasound may also be tested.

According to WHO prediction, the rate of gynecological cancers will be doubled by the year 2040 (Figure 4). The highest rise is again expected in cervical cancer worldwide where Asia will face more than 40% rise. The health care system among Asian and African countries is not yet ready to bear such a huge burden.

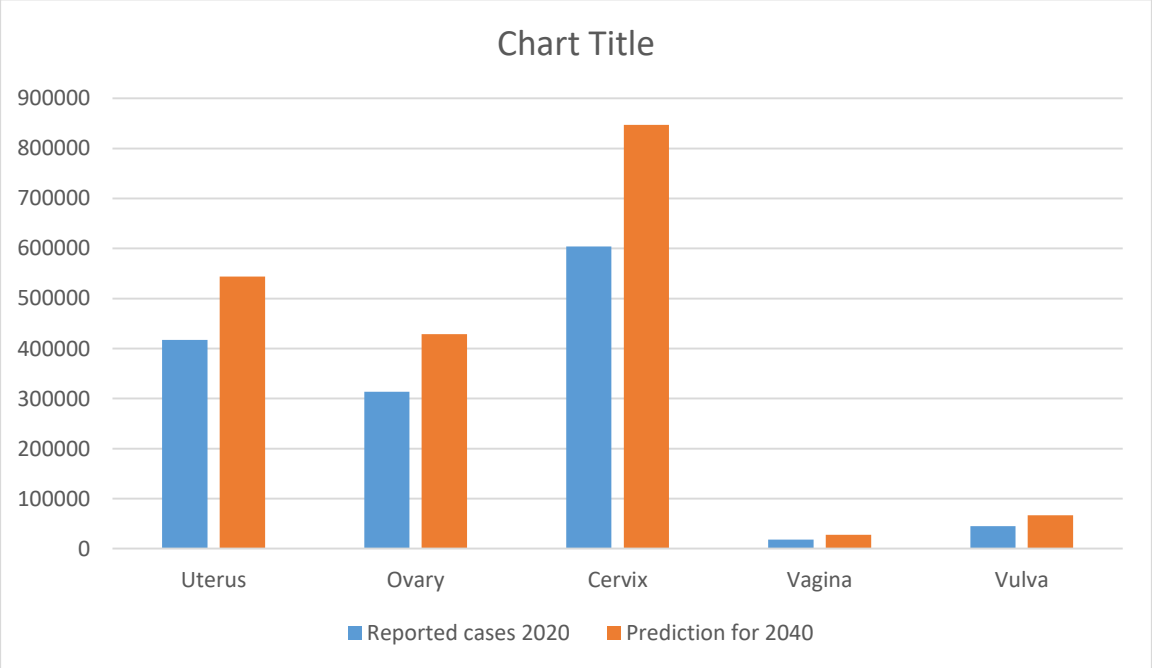

Figure 4: Current incidence (ie 2020) and predicted rise by 2040 in gynaecological cancers(2) **(adopted from Globocan 2020 data)**

Thus it is important to understand the upcoming major health issue. A few measures need to be taken by all the governments and health care organizations:

1. **Establishment of cancer registries**
   In most of the developing countries cancer registries are not yet established in their true spirit even if established they are not fully functional. Lack of trained personnel to establish and run the registry is one of the major issues faced by most developing countries. Therefore, in this regard developed countries may volunteer their services in providing human resource training and facilitation in establishing the registry. The developing countries on the other hand should also come forward and seek help from countries where cancer registries are fully functional.
2. **Understanding of clinical course and biology of cancer at national level**
   Since cancer is a heterogeneous disease, showing a differing pattern of clinical course and biology according to the age and race. Thus an understanding of cancer biology is of utmost importance to develop appropriate treatment guidelines. Understanding biology and biological mechanisms will lead to the identification of novel therapeutic targets.
3. **Development of new therapeutic agents**
   Since most cancer therapy options are very costly thus the rising rate of cancer will not only affect individuals, family units but also pose a huge economic burden on countries. Developed countries have established centers and enough budget to control and further expand resources, but developing countries with limited resources will not be able to bear such a huge burden. Thus the development of local low-cost drugs and targeted therapies will help them to be abreast with such upcoming major health issue.

Conclusion

Gynecological cancers are predicted to be doubled in the upcoming years, it is therefore recommended to understand its epidemiology, development of cancer registries, understanding of cancer biology and provision of new economical treatment/ therapeutic options.

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Research article

Association of body weight on pulmonary function tests in young individuals (aged 18- 40 years)- A cross-sectional study

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ABSTRACT
This was a prospective cross-sectional study conducted to evaluate association of waist, hip and thigh circumferences on respiratory parameters among young healthy adults. A total of 180 volunteers of different weight categories; including underweight, normal weight, over weight and obese people were recruited by using non-probability convenient sampling technique. Non-smoker males and females (non-pregnant), aged between 18-40 years with no pulmonary and cardiac disease were included in the study. Waist circumference, mid-thigh circumference, hip circumference and respiratory parameters were measured. The results showed a significant association between waist circumference with forced vital capacity (FVC) ($r = 0.188$, $p = 0.011$), average tidal volume (VT) ($r = 0.160$, $p = 0.032$), inspiratory reserve volume (IRV) ($r = 0.388$,$p<0.001$), vital capacity (VC) ($r = 0.312$, $p<0.001$), total lung capacity (TLC) ($r = 0.385$, $p<0.001$), and functional residual capacity (FRC) ($r = 0.477$, $p<0.01$), and a negative association with forced expiratory volume in 1 second (FEV1) ($r = -0.148$, $p = 0.048$) and FEV1/FVC ratio ($r = -0.246$, $p<0.001$). Significant association was not observed between waist circumference and expiratory reserve volume (ERV) ($r = 0.071$, $p = 0.344$). In the present study, increased waist, hip, and thigh circumferences were found to be negatively associated with FEV1 and FEV1/FVC ratio. Spirometry should be performed in obese and overweight young healthy adults even if they are asymptomatic, as early preventive measures can be taken to reduce the resulting morbidity.

Key Words: Anthropometry, spirometry, obesity, healthy adults

INTRODUCTION

The growing rate of obesity is a global public health issue, where prevalence of obesity in United States of America (USA) has been reported to be about 36% in adults while in children and adolescents it is reported to be 16.9%(1). Data from the Middle Eastern countries shows obesity prevalence exceeding 40%(2). The rise of the rate of obesity was obvious in a pooled analysis, where in 2016 there were 124

million as compared to 11 million children and adolescents were falling in the obese category in 1975(3,4). According to a National Health Service survey conducted in 1990-94 the prevalence of obesity in Pakistan was 1% while that of overweight was 5% in 15-24 years age group. This survey also showed that the prevalence of obesity in rural areas was 9% among adult males while it was 14% among adult females however in urban areas it was 22% among adult males and 37% among adult females(5). In 2013 the prevalence of obesity in rural areas was found to be 11% among men and 23% in women, while in urban areas, it was found to be 23% in men and 40% in women(6).

Body mass index (BMI) is a standard to measure obesity more commonly than body fat percentage. Waist and hip circumferences can be used to estimate the degree of obesity. Regional fat distribution i.e. abdominal obesity appears to be more influencing associated with comorbidities showing strong association with metabolic syndrome and related consequences (7). Waist circumference (WC) is a valuable tool for the detection of obesity and it is very simple to perform as it can be measured without taking height into account. The WC gives the idea about the fat stores in abdomen as well as total body fat (8). For the assessment of obesity, measurements of waist circumference or waist-to-hip ratio are valuable tools because, reducing central adiposity may be more difficult than just reducing overall body weight. More effort is needed to improve the diet and physical activity for the reduction of fatty tissue in persons having abnormal waist-to-hip ratio(9).

As compared to BMI, WC predicts lung function well. The persons, who have normal WC, are found to have normal values of Forced Expiratory Volume in 1 second (FEV1) and Forced Vital Capacity (FVC) (10). There is limited literature available to study the relationship of fat distribution of a body on respiratory parameters including healthy individuals or people with normal BMI. Therefore, this study was conducted to evaluate the fat distribution influencing lung function among apparently healthy obese, normal weight, underweight and overweight population.

METHODOLOGY

This was a cross-sectional study conducted in Physiology department of Liaquat University of Medical and Health Sciences (LUMHS), Jamshoro, Sindh. One hundred and eighty individuals, including males or non-pregnant females, aged between 18-40 years were recruited by using non probability convenient sampling technique. Sample size was calculated by open epi version 3.01 software, with 95% confidence interval and 5% precision. All recruited volunteers were non-smokers and had no known pulmonary, chest or cardiac anomalies, and did not work in the dusty environment. Invitation posters for volunteers were pasted at different locations in the premises of the University.

Age, gender, height and weight were recorded, after taking written informed consent. Spirometry test was performed using Power lab, model 15T (AD instrument-Australia) to check respiratory parameters in standing position, wearing clip on nose to prevent air leakage. For accuracy three readings were taken and both static and dynamic lung volumes and capacities were recorded. The recorded parameters were forced vital capacity(FVC) (i.e., total exhaled air), Tidal Volume (VT) i.e., air inhaled and exhaled during normal inhalation, Inspiratory Reserve Volume (IRV) i.e., extra quantity of air inhaled till maximum inspiration, Expiratory Reserve Volume (ERV) i.e., extra quantity of air exhaled till maximum expiration, Vital Capacity (VC) i.e., maximum amount of air exhaled till maximum inspiration, Forced Expiratory Volume in one second (FEV1) i.e., breathe out in one second during enforced outbreath after forced inspiration, Total Lung Capacity (TLC) i.e., one can inspire maximum amount of air, Functional Residual Capacity (FRC) i.e., amount of air exists in lungs

till normal expiration and inspiratory capacity (IC) i.e; amount of air inhaled through a deep inhalation. All the parameters were calculated in liters and FEV1/FVC ratio was calculated. Waist circumference (WC) was measured around the belly at the level of the umbilicus.
Hip circumference is the broadest circumference over the buttocks measured with measuring tape. These measurements were used to calculate the waist hip ratio (WHR) also. Then mid-thigh circumference was measured on the right side of body, midway between top of femur and top of the tibia.

Statistical Methods

Statistical Package for Social Sciences (SPSS version 22.0) was used to analyze the collected data. For anthropometric parameters such as waist circumstance (WC), thigh circumference (TC), and waist to hip ratio (WHR) mean and standard deviation were calculated. To compare the mean of respiratory parameters; t-test was applied that includes FEV1, FVC & TLC between higher and lower WHR, WC, TC and Hip circumference. Analysis for correlation was done to observe the association between respiratory parameters and body fat-distribution (WHR, TC, WC, and HC). P-value < 0.05 was taken as statistically significant level.

RESULTS

Demographic Characteristics

Out of 180 participants, 94 (52.2%) were males and 86 (47.8%) were females and their mean age was 21.83(SD±5.88) years, whereas their mean weight was 66.12 (SD± 21.30) Kg, mean height was 2.85(SD±0.33) m^2, and mean BMI was 25.10(SD±6.55) kg/m^2,whereas majority of them were either overweight 58(32.2%) or obese 47(26.1%). 41(22.87%) participants had normal weight whereas 34(18.9%) were underweight.

Correlation of Respiratory parameters and fat distribution

The FVC was significantly correlated with waist circumference (r=0.188, p=0.011), hip circumference (r=0.169, p=0.024), thigh circumference (r=0.217, p=0.003) and waist-hip ratio (r=0.208, p=0.005). FEV1 (L) was significantly correlated with waist circumference (r=-0.148, p=0.048), hip circumference (r=-0.160, p=0.032), and thigh circumference (r=-0.166, p=0.026). FEV1/FVC ratio was significantly correlated with waist circumference (r=-0.246, p=0.001), hip circumference (r=-0.242, p=0.001), thigh circumference (r=-0.279, p<0.001), and waist-hip ratio (r=-0.188, p=0.011).

Average VT (L) was significantly correlated with waist circumference (r=0.160, p=0.032), hip circumference (r=0.308, p<0.001), thigh circumference (r=0.268, p<0.001), and waist-hip ratio (r=-0.179, p=0.016). IRV (L) was significantly correlated with waist circumference (r=0.388, p<0.001), hip circumference (r=0.459, p<0.001), and thigh circumference (r=0.384, p<0.001). ERV (L) was significantly correlated with waist-hip ratio (r=0.191, p=0.01). IC was significantly correlated with waist circumference (r=0.310, p<0.001), hip circumference (r=0.455, p<0.001), and thigh circumference (r=0.371, p=<0.001). VC (L) was significantly correlated with waist circumference (r=0.312, p<0.001), hip circumference (r=0.431, p<0.001), and thigh circumference (r=0.370, p<0.001).

TLC (L) was significantly correlated with waist circumference (r=0.385, p<0.001), hip circumference (r=0.514, p<0.001), and thigh circumference (r=0.443, p<0.001). FRC was significantly correlated with waist circumference (r=0.477, p<0.01), hip circumference (r=0.521, p<0.01), thigh circumference (r=0.462, p<0.001), and waist-hip ratio (r=0.193, p=0.001) (Table1).

Table 1: Impact of Fat Distribution on Pulmonary Function Parameters

Pulmonary Function Parameters	Fat parameter (n=180)							
	Waist Circumference (inch)		Hip Circumference (Inch)		Thigh Circumference (Inch)		Waist-Hip Ratio	
	R	p-value	R	p-value	R	p-value	r	p-value
FVC (L)	0.188	0.011	0.169	0.024	0.217	0.003	0.208	0.005
FEV1 (L)	-0.148	0.048	-0.160	0.032	-0.166	0.026	0.041	0.580
FEV1 / FVC (%)	-0.246	0.001	-0.242	0.001	-0.279	<0.001	-0.188	0.011
Average VT (L)	0.160	0.032	0.308	<0.001	0.268	<0.001	-0.179	0.016
IRV (L)	0.388	<0.001	0.459	<0.001	0.384	<0.001	0.108	0.149
ERV (L)	0.071	0.344	-0.027	0.716	0.018	0.811	0.191	0.01
IC (L)	0.310	<0.001	0.455	<0.001	0.371	<0.001	-0.090	0.230
VC (L)	0.312	<0.001	0.431	<0.001	0.370	<0.001	-0.043	0.569
TLC (L)	0.385	<0.001	0.514	<0.001	0.443	<0.001	-0.012	0.869
FRC (L)	0.477	<0.01	0.521	<0.01	0.462	<0.001	0.193	<0.001

DISCUSSION

Our study showed that waist circumference had a significant positive association with FVC, average VT, IRV, VC, and FRC and had a significant negative association with FEV1 and FEV1/FVC ratio, while waist circumference was found to have no correlation with ERV. Our results were similar to an earlier study showing FEV1 and FVC were negatively correlated with adiposity markers and among

them WC was statistically significant (11), whereas in another study an inverse relationship between WC and FEV_1 was reported, while forced vital capacity was also found to be negatively associated with waist circumference (12). The results of FVC were different from our study; this difference in findings may be attributed to older age criteria in the later study.

The Hip circumference was found to be significantly positively associated with FVC, average VT, IC, TLC, IRV, FRC, and VC; whereas significantly negative association was found with FEV1 and FEV1/FVC ratio, while association with ERV was shown to be negative but was not statistically significant. Thigh circumference was observed to have a significant negative association with FEV1, FEV1/FVC ratio, but there was no association was seen with ERV; wherein all other parameters were shown to have had a significant positive association with thigh circumference. Waist-Hip ratio was found to be a significant positive association with FVC and FRC though there was no association with FEV1, IRV, VC and TLC was found. Various similar studies have reported WHR to have a significant negative correlation with pulmonary function parameters (13), an earlier study showed VC, FEV1, FVC and PEF to have a negative correlation with high WC as compared to group having comparatively low WC (14). Like our study findings, another study also reported a positive association of WHR with forced vital capacity, total lung capacity, and FRC (15), while unlike our study, FVC and FEV_1 have been reported to have a negative correlation with WHR (16), this difference in findings may be due to inclusion of both younger and older adults in that study as opposed to our study. Unlike our study, a study done in Egyptian adolescents showed that waist circumference or WHR had no significant correlation with pulmonary functions(17); these dissimilar results could be due to different age criteria of the study participants as children aged 6 to 16 years were included in that study.

Our study is novel for including healthy volunteers in order to portray true picture of the relationship. However, a small sample size and non-probability convenient sampling technique can be taken as limitations of the study. Considering the views of our study and to what extend these correlations may be consistent with the gender variations would be revealing to uncover more facts about it.

CONCLUSION

Our study showed that increased waist, hip and thigh circumferences were had a negative association with FEV1 and FEV1/FVC ratio, indicating obstructive pattern in these young adults. It is thus recommended that spirometry should be performed in obese and overweight young adults even if they are asymptomatic, as measures can be taken to reduce the resulting morbidity. More researches with large number of sample size are recommended to look at the long term effects of body fat on pulmonary function.

Ethical Consideration: The study was approved by the Ethical committee of Liaquat University of Medical & Health Sciences, Jamshoro, Pakistan

Conflict of Interest: There is no conflict of interest.

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Research article

Psychological traumatic events in the recent past and association with diagnosis of cancer

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ABSTRACT
Emotional stress due to psychological trauma causes immune system dysfunction resulting in high risk of development of cancer. The study aimed to correlate psychological trauma in the past five years of cancer diagnosis. This study was a community based survey including cancer patients diagnosed with different cancers undergoing treatment or follow-up by using snowball sampling and questionnaire based technique. The study was conducted during a period of one year from December 2019 till December 2020. All recruited patients were requested for an interview. The results of the study showed a high rate of major psychological trauma among cancer patients. Sudden death of a close relative with and without trauma of natural disaster were most commonly reported events. The study concluded that the risk of cancer development rises with major emotional trauma specially death of a close relative.

Key Words: Emotional stress, psychological trauma, cancer

INTRODUCTION

Cancer is one of the oldest known diseases and currently leading cause of mortality around the globe. The rate of cancer is at rise and further increase is predicted by World Health Organization in its Globocan project(1). Cancer has demonstrated multifactorial causation and risk factors including endogenous factors such as chronic inflammation, environmental factors (ie exposure to carcinogens), drugs, compromised immunity and genetic mutations(2). Emotional stress is known to affect intracellular mechanisms thereby disturbing immunity(3). It has also been suggested that inflammation results in depression and vice versa. The immune disruption has been associated with stressful events resulting in emotional disturbances(4). Stress immune response relationship has been studied previously and a whole new science of psychoneuroimmunology has been established. The stress or emotional events trigger immune response by releasing cytokines including Interleukins which activate vagus nerve response and to a lesser extent trigerminal nerve response causing feelings of sickness(5). Acute stress response physiologically activates adrenal medulla which releases

epinephrine and norepinephrine, which in turn activates Hypothalamic- pituitary axis thereby rising basal metabolic rate, resulting in rise in heart rate, respiratory rate and blood pressure. However, if the response remains there for a longer period, or if it becomes severe the autonomic nervous system become dysfunctional. Autonomic nervous system also controls immune system causing chronic inflammatory response(6) as a result of continuous stress. Chronic inflammation causes glucocorticoid resistance thus inflammatory response progresses further. Chronic inflammation is also known to be linked with cancer development and also poor clinical outcome(7,8).

Recently (ie 2019) a systematic review of cohort studies was reported suggesting a rise in cancer incidence after depression and chromic emotional stress levels and also there was a link of poor prognosis in stressed patients(9). However, there is limited literature available suggesting association of stress induced chronic inflammation and cancer. Also there is limited research available exploring association of acute severe psychological trauma and later development of cancer. Thus this study was designed to explore cancer patients and correlate severe stressful event in the recent past and the diagnosis of cancer.

METHODOLOGY

The study was a community based survey conducted at Hyderabad. Patients with confirmed diagnosis of cancer were identified from NIMRA hospital and informed consent was taken followed by questionnaire based interview. Further samples were identified through snowball sampling. The patients identified through the patients treated at NIMRA were also included. Those patients who refused to share information were excluded. There were 16 close ended questions (Table 1) and responses were categorized into five categories

A- it *happened to you* personally,
B- you *witnessed it* happen to someone else,
C- you *learned about it* happening to someone close to you,
D- you're *not sure* if it fits,
E- it *doesn't apply* to you.

All the patients who consented to be part of the study were asked these questions or in case of English literate patients were requested to go through questions and respond accordingly.

Statistical methods

The data was analyzed by using Statistical Package for Social Sciences (SPSS) Version 21 IBM. Frequency distribution was reported for the events and mean time for the events was calculated along with standard deviation (SD).

RESULTS

A total of 428 patients were interviewed including 168 males (ie 39.3%) and 260 females (ie 60.7%). A total of 380 patients disclosed their site of cancer and 48 declined to inform about the site of the cancer. Breast cancer patients were 151 (39.7%) followed by head and neck including oral cancers (n=94, 24.7%). Gastrointestinal and reproductive cancers were 34 (7.9%) in each while 22 patients with lung cancer (5.8%) and remaining were diagnosed with liver, blood, bone and neuroendocrine cancers. Natural disaster, death of the close relative and fire/ explosion were major psychological trauma they faced. Natural disaster with death of the close relative was even higher. A summary of the responses is given Table 1. Mean time of event happened and diagnosis of cancer 3.49 (SD±3.726) years.

Table 1. List of the questions asked for Life events from patients undergoing treatment/ follow-up of cancer and summary of their responses

No	Event	A	B	C	D	E
1	Natural disaster (for example, flood, hurricane, tornado, earthquake)	316 (74.5)	0	0	0	108(25.5)
2	Fire or explosion	251 (58.6)	4(0.9)	0	0	173 (40.4)
3	Transportation accident (for example, car accident, boat accident, train wreck, plane crash)	152(35.5)	13(3.0)	0	0	259(60.5)
4	Serious accident at work, home, or during recreational activity	57(13.3)	12(2.8)	0	0	347(81.1)
5	Exposure to toxic substance (for example, dangerous chemicals, radiation)	53(12.4)	17(4.0)	0	0	357(83.4)
6	Physical assault (for example, being attacked, hit, slapped, kicked, beaten up)	35(8.2)	8(1.9)	0	0	384(89.7)
7	Assault with a weapon (for example, being shot, stabbed, threatened with a knife, gun, bomb)	24(5.6)	8(1.9)	0	0	396(92.5)
8	Sexual assault (rape, attempted rape, made to perform any type of sexual act through force or threat of harm)	14(3.3)	5(1.2)	0	0	409(95.6)
9	Combat or exposure to a war-zone (in the military or as a civilian)	17(4.0)	4(0.9)	0	0	406(94.9)
10	Captivity (for example, being kidnapped, abducted, held hostage, prisoner of war)	32(7.5)	8(1.9)	0	0	388(90.7)
11	Life-threatening illness or injury	115(26.9)	4(0.9)	0	0	305(71.3)
12	Severe human suffering	108(25.2)	4(0.9)	0	0	316(73.8)
13	Sudden, violent death (for example, homicide, suicide)	132(30.8)	0	0	0	296(69.2)
14	Sudden, unexpected death of someone close to you	221(51.6)	0	0	0	207(51.6)
15	Serious injury, harm, or death you caused to someone else	182(42.5)	1(0.2)	0	0	245(57.2)
16	Any other very stressful event or experience	149(34.8)	1(0.2)	0	0	278(65.0)

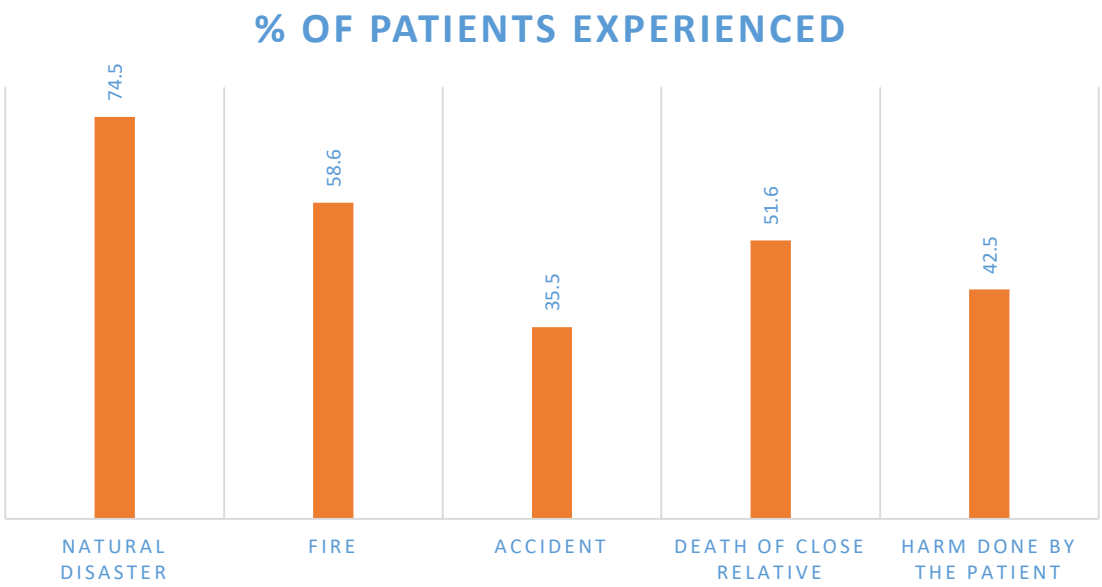

Figure 1. Most commonly reported traumatic events experienced by patients undergoing treatment or follow-up of cancer

DISCUSSION

Psychological stress is one of the major causes associated with chronic illness including metabolic syndrome, hypertension, diabetes and even cardiac disease and stroke. Wear and tear of cells is an ongoing process thus the dividing cells have strong system of DNA repair mainly govern by p53 gene pathway while those cells which cross the boundaries of being repaired go through a clearance system of apoptosis (ie cell suicide) govern by Bcl2 pathway(10). Mitochondria is an important organelle for cell energy metabolism and normal cellular functions. Stress response has been associated with mitochondrial dysfunction and at the same time mitochondrial dysfunction has been significantly linked with cancer(11). Cancer cells tend to develop at all times in human body but the immune system has a mechanism to remove them. Continuously dividing cells such as Gastroenterological lining epithelium, oral mucosa, bone marrow cells and breast cells have a higher chance of being masked by immune system and escape destruction and develop into cancer.

There is literature available suggesting freezing of immune system in response to acute psychological trauma. In our study natural disaster, fire, accident, death of a close relative and harm done by the patient to someone else were identified as the key events happened in the past. The mean time for the past event was three and half years in our study. Further elaboration stated that this natural disaster, fire and accidents also resulted in death of family members. Previously reported studies have suggested that natural disasters and death of close relatives have been associated with higher rate of cancer development. War situations raise the reported cases of cancer however it cannot be directly linked with stress but the environmental factors such radiations from ammunition may also play a role. A large study was conducted including 485864 adults from United states of America showed that psychological stress was associated with higher mortality. The study also demonstrated associated

with the degree of stress categorizing in mild moderate and severe, where higher the level of stress and more the relative risk of cancer mortality(12).

A previously reported study was conducted through telephonic survey of newly diagnosed breast cancer patients to evaluate association of major life stressors within two years. A total of 222 patients were included and 51.3% reported stressors in the recent past. Great majority had family related stressor while considerable number (ie 21%) had financial worries. This was an interesting study in a way supporting our study results where death of a close relative came up as one of the major trauma while financial stress was not included in our study(13).

Following Houston hurricane a survey was conducted which explored allergy and stress in the affected population. Results suggested that the affected population showed higher rate of allergies and high stress score(14). However, association with cancer or longer follow-up of the population was not done as part of the study.

A large number of studies have been conducted looking at the psychological stress among cancer survivors and those undergoing treatment of cancer (ie chemotherapy, radiotherapy). However, there is limited literature available looking at the association of major psychological trauma as a risk factor for development of cancer. On the other hand, Post-traumatic Stress disorder(PTSD) is one of the known psychological trauma response seen. Even early life stresses have been linked with immunological and metabolic abnormalities later in life(15).

Meta-analysis and systematic review of 11 studies showed a moderate rise in breast cancer risk after going through a stressful life event(16). Work stress is a form of chronic stress where colorectal cancer, lung cancer, esophageal cancer have been reported to be significantly associated. These results were concluded in a meta-analysis of observational studies with pooled analysis of 281,290 participants(17). Another study not only confirmed association of stress with risk of breast cancer but also suggested a dose response fashion(18), higher the stress level higher the risk of breast cancer. However, work stress was not explored in our study but its seems like chronic stressful environment has strong association with development of cancer. Another nested case- control study was conducted exploring association of post-traumatic stress disorder in different cancer groups but the results were not significant in correlating PTSD and cancers(19). The duration of the PTSD and coping strategies were not focused, which might have influenced these results.

CONCLUSION

Emotionally traumatic events specially death of a close relative appears to be associated with high risk of cancer development. It is therefore required to provide appropriate psychological support to high risk population. Further studies with long term follow-up and interventional studies to minimize the risk and understanding of pathogenesis of the association of stress and psychological stress will be required.

Ethical Consideration: Informed consent was taken from all the patients, the codes were used for data collection. Names of the patients or any kind of identity was not mentioned in questionnaire or any other form of data.

Conflict of Interest: There is no conflict of interest.

Funding: No funds required for the study.

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Research article

Assessment of pattern of refractive errors in infantile esotropia- A single-center cross-sectional study

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ABSTRACT
This was a cross-sectional study conducted to explore the patterns of refractive errors found in infantile esotropia patients from newborns to the age of 15 years, attending the Pediatric clinic of Al-Ibrahim Eye Hospital, Karachi, Sindh, Pakistan. Data was collected on a pre-designed proforma. A total of 79 patients (total of 158 eyes) including 44 males (55%) and 36 females (45%) were recruited. All these patients had infantile esotropia. The study showed out of 79 patients (158 eyes), 89 eyes had hyperopia, 15 eyes had myopic astigmatism, 44 eyes had hyperopic astigmatism, while 4 eyes had mixed astigmatism, and 6 eyes had myopia. The hypermatropia was found to be the most commonly occurring refractive error in infantile esotropia resulting in inward eye deviation.

Key Words: Infantile, Esotropia, Refractive Error

INTRODUCTION

Any deviation of binocular alignment is called *Strabismus*. Squint or the lazy eye is a common term used for strabismus, if remains untreated it can potentially result in consequences including permanent loss of best-corrected visual acuity (ie amblyopia) in otherwise anatomically normal eye (1). Strabismus also badly affects the quality of life due to cosmetic disfigurement which in turn result in poor self-confidence and social dissociation (2). This can also badly affect career progression. Esotropia is a type of strabismus which presents with an inward turning of one or both eyes (3). Congenital esotropia patients tend to have compromised sensory function in a way that the focused object is seen by the fovea of one eye and the nasal retina of the second eye. It is reported that around 40% cases present within six months of age while other 60% by the age of 48 months (4). Infantile estropia is most frequently seen comitant esotropia with a reported incidence between 0.2 to 0.6% in the United Kingdom, and the United States of America (5,6).

Globally reported rate of visual impairment in children over the age of 5 years is 153 million due to untreated refractive errors, out of which 8 million are reported to end-up in blindness. According to World Health Organization approximately 12.8 million children between 5 to 15 years' age group are reportedly visually impaired mainly due to untreated refractive errors resulting in a worldwide prevalence of 0.96%, where the highest rate has been reported in urban regions in south-east Asia and China (7). Refractive errors are correctable in a great majority of cases accounting for more than 50% of

correctable cases where visual impairment can be successfully avoided. Refractive errors in children have a higher chance of remaining undetected, potentially causing behavioral complications and negatively impacting social interaction and poor performance (academic or extra-curricular both activities) at school. There is evidence available suggesting an association of even slight reduction in vision can increased risk of poor performance regardless of age. While in children it has shown inverse relationship with the performance at school/ educational institution causing mental health issues in children (8). Nevertheless, up to 75% of all visual impairments reported from urban and high income regions are due to un-corrected or partially corrected refractive errors (8).

There is limited literature available suggesting types of refractive errors found in infants and younger children in the Pakistani population. Thus this study was designed to assess the types of errors found in our population that will help in the early diagnosis of refractive error and also the development of preventive strategies in infantile refractive errors.

METHODOLOGY

This descriptive cross-sectional study was conducted at the Pediatric Ophthalmology Department of Al-Ibrahim Eye Hospital, Isra School of Optometry, Karachi, Pakistan. The patients of infantile esotropia having eye deviation by birth or developed within the first six months of age and presented in the hospital by the age of 15 years were identified and recruited. Data was collected between August 2019 and October 2019. Patients were identified by using non-probability convenient sampling.

Initially patients had to register at the Pediatric department and their visual acuity was checked and then they were referred to the orthoptic department for case assessment. All patients underwent the assessment of cycloplegic refraction as well as fundoscopy for anterior and posterior segment examination. Data was collected and recorded on a pre-designed proforma.

Data was analyzed by using Statistical Package for Social Sciences (version 20.0). All continuous variables were presented as mean and ± Standard Deviation (SD). All categorical variables were presented as frequency distribution and percentages.

RESULTS

A total of 79 patients were recruited and 158 eyes were examined (ie 79 right eyes and 79 left eyes). There were 43 males and 36 females. The highest number of patients were presented in the age group 0-5 years, age distribution is given in Figure 1. The low refractive error was reported in 47.5%, moderate refractive error in 35.0%, and severe refractive error was reported in 16.3%. Females patients showed refractive errors in 36 (45%) patients while in males 43 (55%) had errors in refraction. A summary of the distribution of refractive errors according to age is presented in Table 1.

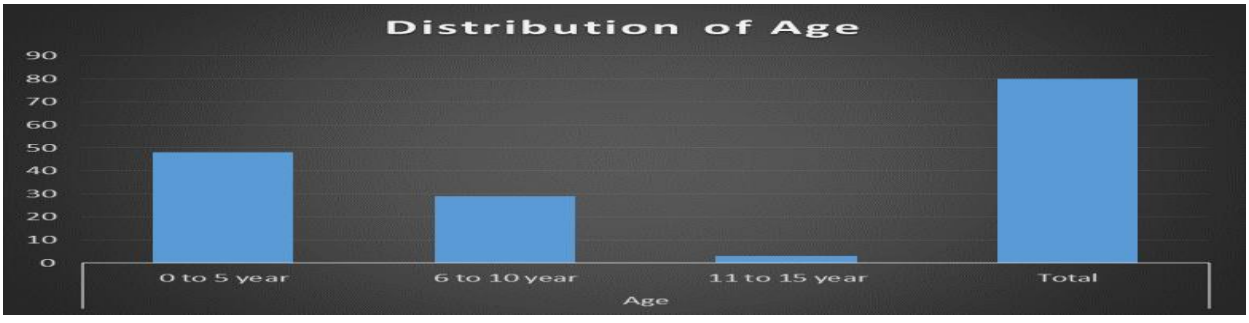

Figure 1. Age distribution of patients presenting with refractive error

Table 1: Comparison between Refractive error and age group

Type of Refractive Error of Total Eyes						
Age	Myopia (%)	Hyperopia (%)	Myopic Astigmatism (%)	Hyperopic Astigmatism (%)	Mixed Astigmatism (%)	Total No of Eyes (%)
0 to 5 year	4 (2.5%)	58 (36.7%)	11 (6.9%)	20 (12.6%)	2 (1.2%)	95 (60.1%)
6 to 10 year	2 (1.2%)	27 (17.0%)	4 (2.5%)	22 (13.9%)	2 (1.2%)	57 (36.0%)
11 to 15 year	0 (0.0%)	4 (2.5%)	0 (0.0%)	2 (1.2%)	0 (0.0%)	6 (3.7%)
Total	6 (3.7%)	89 (56.3%)	15 (9.4%)	44 (27.8%)	4 (2.5%)	158 (100.0%)

DISCUSSION

This study shows that out of 79 patients, right eyes were 79 (50%) and left eyes were 79 (50%), the frequency was found higher in the male 43(55%) as compared to females 36(45%) from 79 esotropic (infantile) patients. Similar results were previously reported in a study conducted by Retina Foundation of the Southwest, USA, where all recruited patients were followed up for a minimum of 5 years for infantile esotropia (8).

In this study frequency was found higher 48(60%) were falling in the age group between newborn to 5 years, 29(36.3%)were in the age group of 5 to 10 years, and 3(3.7%)were in the age group of 10 to 15 years. However, in study on longitudinal refractive changes in infantile esotropia from United States of America (8), 13 (ie 9%) participants had correction of their vision before their first birthday with or without use of spectacle. While those who presented late n=130 (ie 91%) participants had to undergo surgery. The mean age of patients who underwent surgery was 9.9±5.6 months (8).

In contrast in our study out of 79 patients (ie 158 eyes), 15 eyes had myopic astigmatism, 44 eyes were found hyperopic astigmatism, while 4 eyes were found to have mixed astigmatism, 89 eyes were found to have hyperopic and 6 eyes were myopic, and none of them had correction within one year.

One such study focusing on "Longitudinal Changes in Refractive Error of Children with Infantile Esotropia" reported that 55% of low to moderate hypermetropic refractive errors had a spherical equivalent with (<+3.00 DS), while 27% had a spherical equivalent of +3.00 to +4.99 DS, and only 19 (13%) had a spherical equivalent ≥+5 .00 DS, 8 (6%) had a myopic of infantile esotropia patients (5).

In another study from Asian population focusing on comitant horizontal strabismus reported that less to moderate hyperopes refractive errors were found in children (3). There was Myopia (i.e., spherical equivalent ⩽ −0.5 D) present in 5%, while 58% of children had moderate hyperopes (with spherical equivalent ⩾2 D). However, in our study there were no difference observed in the type of refractive error, this might be because of difference in sample size.

Similar studies have been reported from other regions of the world but limited literature has been presented from Sindh therefore this study is first of its kind. Another important factor observed beyond the scope of the study that people had lack of awareness to get their eye conditions checked or check their children at early age to exclude any visual impairment.

CONCLUSION

In the study, hypermetropia found to be the most frequently occurring type of refractive error in infantile esotropia causing inward eye deviation. Individuals with congenital esotropia fail to demonstrate typical patterns of emmetropisation. Therefore, correction of refractive errors should be encouraged in children with esodeviation; so that visual impairment can be timely corrected.

Ethical Consideration: Approval of the study was taken from the research ethical committee of Isra postgraduate institute of ophthalmology Informed consent was taken from all the patients, the codes were used for data collection. Names of the patients or any kind of identity was not mentioned in questionnaire or any other form of data.

Conflict of Interest: Authors declare no conflict of interest.
Funding: No funds required for the study.

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Research article

Validation of onco-assist survival prediction tool in stage I, II and III colon cancer among Asian patients

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ABSTRACT

Clinical calculators and predictors are now commonly used in clinical practice to predict most accurate clinical outcome and provide guidance for appropriate therapy. One of the most used calculator is Onco-assist. This study was conducted to compare onco-assist prediction of the patients diagnosed with colon cancer Stage I, II and III. Data was retrospectively collected from 88 patients of colon cancer diagnosed over the period of 11 years (2008 to 2018) and registered at Nuclear Institute of medicine and radiotherapy (NIMRA), Hospital, Jamshoro Sindh. These patients received primary surgical therapy without any neo-adjuvant systemic chemotherapy. Survival assessed on onco-assist prediction algorithm using the defined parameters and compared with the actual survival according to the grade of the tumour. The clinical calculator onco-assist incorporated seven variables: gender, age number of lymph nodes examined, number of tumor-involved lymph nodes, T = (1-4), grade (low / high), adjuvant chemo received (yes / no) if yes then only 5FU or 5FU plus Oxaliplatin based. Onco-assist predicted five-year survival rate in well differentiated tumours with and without chemotherapy as 84% and 80% respectively, in moderately differentiated tumour with and without chemotherapy as 78% and 76% respectively. For poorly differentiated tumours the predicted survival rate with and without chemotherapy was 73%. While actual achieved survival was 35%, 52% and 17% for well, moderately and poorly differentiated cancers. This clinical calculator onco-assist includes limited parameters and limited adjuvant therapy options thus the prediction of cancer survival following surgery in stage I –III colon cancer does not appear to accurately predict outcome in Asian population.

Key Words: colon cancer; Onco-assist, survival calculator, adjuvant chemotherapy.

INTRODUCTION

Colorectal cancer (CRC) is one of the leading cancer throughout the world both in developed and developing countries. The primary curative treatment is surgical resection of the tumor followed by adjuvant therapy. The American Joint Committee on Cancer (AJCC), has endorsed clinical calculators and nomograms for providing the most tailored treatment plan along with precise estimate of clinical

outcome of cancer patients. Using the clinico-pathological parameters, these nomograms predict chance of recurrence after surgery for operable colon cancer (ie Stage I, II and III).(1) Commonly used tools for survival prediction usually predict outcome of patients for five years relatively more accurately in patients of colon cancer after diagnosis and primary treatment.(2) The exact prediction of survival is a difficult undertaking for oncology team and also a prime concern of the patient and the family.(2-3). Onco-assist is one of the prediction tools which provide survival rates for colon cancer, based upon biological markers and adjuvant treatment.

The prediction of the risk recurrence in colon cancer is generally based upon the observations made according to the clinic-pathological factors and patients factors including performance status, weight loss and tumor grade while in recurrent and metastatic cases the anatomic sites of metastases and overall health status of the patient provide useful information which can help in prediction of clinical outcome including disease specific and overall survival(4).

Early operable cases undergoing complete resection of stage I or II disease, the characteristics of a primary colon cancer, such as initial stage of tumor, and histological grade can provide valuable information regarding the clinical behavior of malignant tumor (5). Not only tumour biological markers and patient characteristics but also genetic signature of the cancers can help in prediction of the recurrence and general clinical outcome. These prognostic factors provide precise guide for management and therapy(6). However, in any case a single factor cannot predict clinical outcome neither guide treatment.

The prediction after primary surgery is a difficult task. Combination of tumour and treatment factors can potentially predict it. There is data available suggesting usefulness of onco-assist in colorectal cancer. However, there is limited literature available on validating its usefulness in Pakistani population. Thus this study was conducted based on a retrospective review of the clinical data.

METHODOLOGY

This was a retrospective observational study conducted at Nuclear Institute of medicine and radiotherapy (NIMRA), Jamshoro, Pakistan. Data was retrospectively collected from case files. Complete information of the variables for Onco-assist including age, gender, grade, T (ie tumor size), N (ie number lymph nodes examined and number of lymph nodes positive) and adjuvant chemotherapy (only 5FU/ 5FU plus Oxaliplatin) was available for 88 patients of colon cancer stage 1, II and III. These patients were registered and underwent treatment from 2008 till 2018. These patients received primary surgical therapy without any neo-adjuvant systemic chemotherapy. After their diagnosis, they received treatment as per hospital policy. Then the survival assessed on onco-assist prediction algorithm for colon cancer on the defined parameters and the actual survival compared to onco-assist predicted survival, according to the histological grade of the tumour. Patients of stage IV colon and recto-sigmoid tumors were excluded.

Data was collected and analyzed by using SPSS version 19.0. 5-year Median survival was calculated by using Kaplan Meier Method and compared with the median predicted survival.

RESULTS

The clinical calculator onco-assist incorporated seven variables including gender, age number of lymph nodes examined, number of tumor-involved lymph nodes, T = (1-4), grade (low / high), adjuvant chemo received (yes / no) if yes then only 5FU or 5FU plus Oxaliplatin based. Onco-assist

predicted five-year survival rate according to grades, where well differentiated without having adjuvant chemotherapy was 80% and with chemotherapy was 84%, while moderately differentiated tumours if without receiving chemotherapy predicted to have 76% 5-year survival and if receiving chemotherapy, it was 78%. Poorly differentiated tumours on the other hand predicted to have 73% 5-year survival regardless of adjuvant chemotherapy.

However actual 5- year survival rate in well-differentiated (n = 27) tumours was 30.7%, moderately differentiated (n =46) was 52.3% and for poorly differentiated (n =15) was 17%. A summary of the comparison is given in Figure 1.

Limitations of Onco-assist clinical calculator:

- The 5 year estimate of colon cancer specific survival without adjuvant chemotherapy calculated by using data derived from End Results (SEER) registry between 1988 and 1997 for Surveillance, Epidemiology(7). Thus for the patients from the 1990s causing a stage shift in the modern days due to newer imaging modalities.
- A number of factors considering the risks and benefits of adjuvant chemotherapy in colon cancer patients(8) according to ESMO and NCCN guidelines not considered i.e. lymph-vascular invasion, peri-neural invasion, perforation, obstruction, co-morbidities and surgical margin status all of which can influence the likelihood of recurrence were not included in the algorithm for prediction of survival outcome.
- The calculator only colon cancer not considering rectum, however majority of patients with sigmoid colon also involve rectum this sigmoid colon had to be excluded.

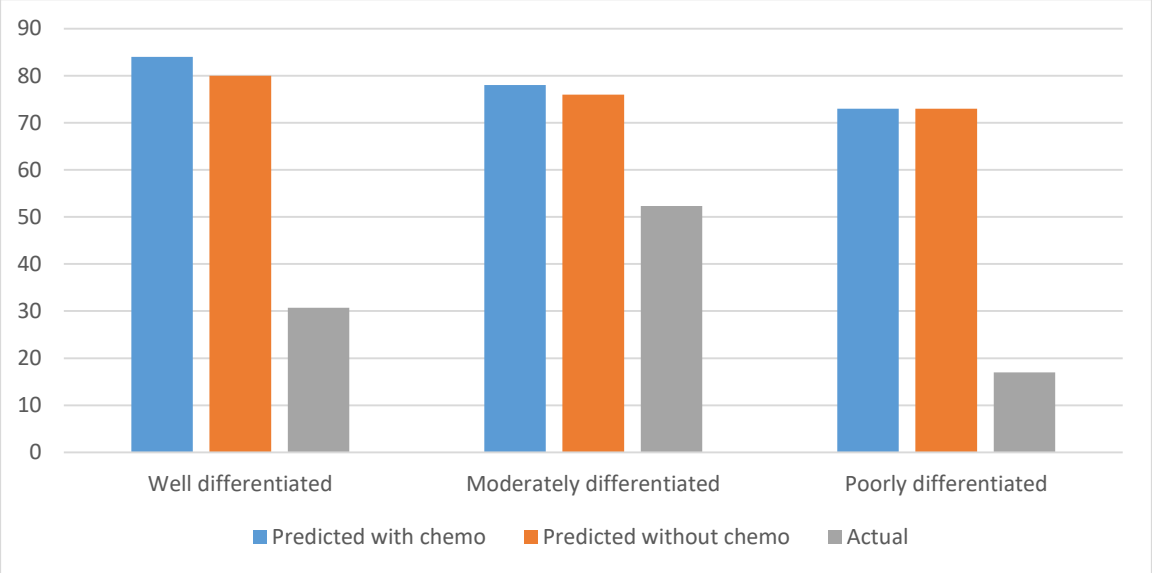

Figure 1. Onco-assist prediction of 5-year survival (%) in patients with colon cancer in Pakistani population versus actual observed 5-year survival rate (%).

DISCUSSION

Survival outcome of CRC has steadily improved from 1978 to 1999, this may be due to provision of modern surgical techniques and, the availability of modern chemotherapeutic drugs such as irinotecan and oxaliplatin for treatment of recurrent colon cancer in the most recent era.(4) The other

factors such as improved screening facilities and diagnostic modalities including genomic testing has played important role.(9) In clinical practice role of adjuvant management is highly dependent on lymph node involvement age, gender, tumor size and grade of tumor. In addition, other high risk features including lymph vascular invasion, peri-neural invasion, perforation, obstruction, co-morbidities, tumor adherence and depth of invasion affect the decision of clinicians to treat patients with colon cancer and also remains a highly debated issue.(8)

Onco-assist is a well reputed and widely used online algorithm in breast cancer and validated by many studies(11). However, there is limited literature available validating it in colon cancer, which is a commonly found cancer globally. There is another tool with the title of Oncology Pro, which was derived from seven randomized controlled trials to predict survival outcome in patients receiving fluorouracil. The pooled analysis included 3302 patients. The review concluded that lymph node status, size of the tumour and the histological grades are the independent predictors of survival both disease specific and overall(5). However, there was no comparison was made with other tools. Colorectal cancer generally shows poor survival in developing countries due to late diagnosis and also possible aggressive tumour biology. Thus it is utmost important to develop such tools and validate them in populations independently so that the racial differences in clinical behavior of cancers can be addressed.

In our study onco-assist over-estimated survival while the actual achieved outcome was much less as compared to the predicted. This probably indicates that Asian population having aggressive tumor biology because in spite of getting standard treatment the overall survival is significantly different from onco-assist predicted. Secondly this calculator incorporates seven variables needs to be revised with inclusion of more sophisticated predictors and more specific variables in onco-assist in order to make it useful for Asian population. It is also recommended that emerging biomarkers need to be incorporated and validated for acceptance in the oncologic community.

CONCLUSION

This clinical calculator onco-assist for predicting cancer survival following surgery in stage I –III colon cancer is entirely different in case of Asian population. Larger studies with inclusion of more biomarkers are required to be conducted and also other algorithms need to be validated and compared in order to design a well fit model which can accurately predict clinical outcome in Asian population.

Ethical Consideration: The study was approved by the Local Research Ethical committee

Conflict of Interest: There is no conflict of interest.

Funding: No Funding required

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Research article

Familial traits of attached and unattached Earlobe in human population of different age groups- A case study of district Nawabshah, Pakistan

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ABSTRACT

This study aimed to evaluate frequency of attached earlobes (dominant) and unattached earlobes (recessive) traits in humans of different age groups. This study was conducted in the Department of Molecular Biology and Genetics of Shaheed Benazir Bhutto University, Shaheed Benazir Abad from September to October 2020. A total of 200 families with attached and unattached earlobes were included by using non-probability convenient sampling. Data was collected regarding attached and unattached earlobes of different people. The data was collected and analysed by using SPSS version 21.0. Results of the study suggested that unattached earlobes were dominant feature, and the attached earlobe feature appears to be recessive among all 200 families. We observed that the dominant feature of the unattached earlobe was more common in the 1 to 20 years' age group, while the recessive feature of the attached earlobe was common in 31 to 45 years old age group. The study concluded that unattached earlobes can be observed in people of every age group and associated with family traits.

Key Words: Earlobe; Trait; Frequency; Unattached Earlobes; Attached Earlobes

INTRODUCTION

Human ear is one of the key organ which lacks hardness and elasticity in nature. Some people have attached earlobes, because earlobe lacks any kind of bone (1). Although human ear is connected with head and receives enormous blood that makes ears cosy. Earlobes do not have any important biological functions in the human body (2). The zoologist Deamond Morris said in his book "The Naked Monkey" (1967) that the earlobes plays an additional sexual region for the couples (3). The earlobe is stretched out in length and width with the age (4). According to Mendelian law of inheritance attached and unattached/free earlobe trait is due to the "one gene-alleles" function, this function is not acceptable currently, because genetic influences are unpredictable (5, 6, 7). The earlobe is smooth in nature and hard earlobes are wrinkled. Wrinkled earlobes is the cause of genetic illnesses in children, such as Beck with Wiedemann syndrome (8). Folded earlobes increase the chances of coronary artery diseases according to the new research. According to the modern research the earlobe become more wrinkled with age, the increase in coronary heart disease risks more than younger age. This clearly shows the link of coronary heart disease and earlobe (8). The wrinkled earlobe is called Frank's sign. Mostly unattached/free earlobes are found in the peoples. The kind of unattached/free

earlobes is mostly bigger in size and hang below the attachment point to the head. This is due to the influence of dominant alleles. If the gene of dominant alleles expressed the child is born with unattached earlobes and if recessive allele is expressed the child is born with attached earlobes.
Mostly unattached/free earlobes are found than the attached earlobes. Mother and father with unattached/free earlobes may deliver the children with attached earlobes according to the genetic of alleles. This is due the presence of both dominant and recessive allele (9). Attached earlobes are not commonly found. The attached earlobes are smaller in size and attached to the attachment point to the head. Attached earlobes do not have any hangs, this type of earlobes are formed due to the absence of dominant alleles. Recessive alleles are responsible for the attached earlobes. It is not necessary that the parents with attached earlobes give birth to the attached earlobes children or vice versa. Appearance of a person depend on the traits in the shared pair of chromosomes. The strongest allele is responsible for the ruling on a trait. According to the scientists dominant alleles present in the parent body. If the dominant allele does not show its presence then recessive allele shows its presence. Those expressed characteristics is called recessive characteristics (9). There is limited literature available to comment on the pattern of earlobes in Pakistani population. Thus this study was designed to explore the pattern in local families.

METHODOLOGY

This research was conducted at the Department of Molecular Biology and Genetics, Shaheed Benazir Bhutto University, Shaheed Benazir Abad from September 2020 to October 2020. The attachment and non-attachment of the ear lobe of 200 families were assessed. The families were included by using non-probability convenient sampling technique. Including data for people between the ages of 1 to 20, 21 to 30, and 31 to 45. Among 200 families, 107 families had both types of people (with and without attachment of earlobes). The pattern of earlobes was assessed by inspection and recorded on a pre-designed proforma. Data was collected by using SPSS version 21.0 and presented as frequency distribution.

RESULTS

A total of 200 families were observed, with 940 members from which 576 members had unattached/free earlobes and 364 members has attached earlobes. Out of these 64% of males and 57% of females had unattached earlobes. 116 fathers had unattached earlobes and 64 fathers have attached earlobes, while 118 mothers had unattached earlobes, and 80 mothers had attached earlobes (Figure 1). Among children 98 sons had attached earlobes and 180 sons with unattached earlobes. Among girls 122 had attached earlobes, and 162 daughters were observed to have unattached earlobes(Figure 2). Familial trait was observed but there was no association with the age was seen.

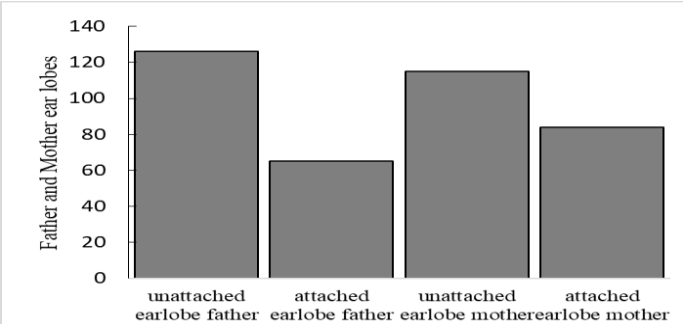

Figure 1. Father and mother attached and unattached ear lobe

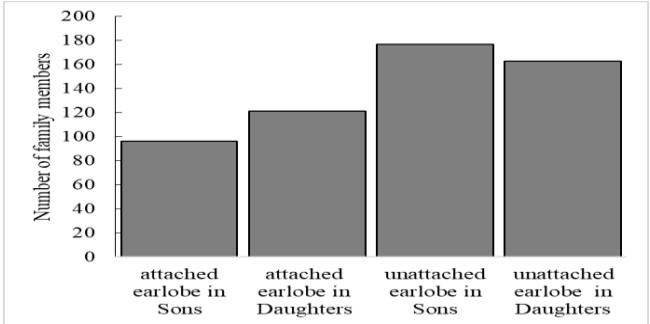

Figure 2. Daughters and sons attached and unattached ear lobe

DISCUSSION

Our study suggested familial and gender pattern of the earlobe traits. Other forms of earlobes were also discovered in both genders, along with conjoined and enjoined unfastened earlobes (10, 11, 12). Regarding the form of the ear, there may be a bilateral asymmetry. The length and form of the tragus additionally range relying at the left and proper facets and gender.

The earlobes display exclusive traits in individuals. In nearly 1/2 of the cases, each males and females discovered the earlobe connected to the face; in lots of cases, it's far free, and a few are partly closed (13, 14, 15). Therefore, the dimensions and form of the earlobe additionally adjustments with the perimeters and gender. The form of the helix varies from individual to individual, displaying positive traits inclusive of concave, coiled, flat and huge scuba covering (16, 17, 18). Darwin's nodules display numerous systems and proper aspects of each gender. The huge variability of the human ear may be attributed to the precise shape and traits of the ear (19, 20, 21, 22). Previous studies has additionally proven that the variety of person outside ears is enough to permit individualization in forensic examinations and can assist solve the difficulty of whether or not a selected suspect may be diagnosed as a criminal. All those variable functions and personalization/unique functions of the ear additionally assist to customise the individual with inside the CCTV photograph of the crime scene (21, 22). There are a few studies available on the morphological traits of ears in the literature. These research have progressed the anthropological and forensic expertise of ears and their variability in unique populations.

CONCLUSION

It has been concluded that shape of the earlobes and its attachment with the head is a familial trait without any association with the age. Clinical correlation and further genetic testing for its association with the transfer of genetic diseases are required to be studied.

Ethical Consideration: The data was collected anonymized after informed consent. No identity was noted or disclosed in the database at any time.

Conflict of Interest: There is no conflict of interest.
Funding: No funding source declared

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Case Report

Hydroperitoneum: A complication of mini PCNL in pediatric age group? -A case report

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ABSTRACT

Renal stones account for approximately 40% of renal disorders in Pakistan including silent stones constituting up to 3%. Nephrolithotomy and Pyelolithotomy used to be the only surgical options offered to the patients presenting with large stones, with additional risk of complications. Percutaneous nephrolithotomy (PCNL) has now being offered to the patients with even large renal stones for over the past three decades. With recent advances and provision of more modern equipments and technology, PCNL has become the gold standard treatment with quick recovery and reduced morbidity and mortality, and fewer associated complications. A boy aged 13 years, underwent mini PCNL for treatment of left side renal stone causing hydronephrosis, previously evaluated by KUB X-Rray and non-contrast CT scan. His retrograde-percutanous access to the collecting system was done under fluoroscopic guidance. After the procedure patient developed rigid and distended abdomen. Aspiration revealed presence of intraperitoneal fluid. Patient was effectively treated with immediate placement of abdominal drain with improvement of clinical presentation Hydroperitoneum is a rare complication of conventional PCNL. Based on our experience and review of published literature, our case of hydroperitoneum after mini PCNL, is the first of its kind. A high degree of sensitivity and knowledge of this complication during PCNL in children would help identify and manage this complication in future. We recommend examination of abdomen post-PCNL in every child before he/she is brought out of anesthesia

Key Words: Hyperperitoneum, Renal Stone, PCNL

INTRODUCTION

Urinary stone disease is a common global health issue involving 12% of the world population. Urinary stones constitute 20% of the patients in the urology OPD (1, 2). There is a geographical and age related variation in the incidence of urolithiasis but remains a major health concern in developing countries (3). Renal stones account for 40% of renal disorders in Pakistan (4), with silent stones constituting up to 3%, which are usually incidentally discovered while undergoing investigation for some other illness or on screening. Percutaneous approach to access kidney for the first time described by Goodwin *et al.* in 1955 for drainage of an obstructed renal system (5) followed by Fernstrom and Johansson in 1976 who removed a renal stone by using the same approach. These successful procedures opened up a whole new era of percutaneous renal surgery (6). Before introduction of the percutaneous approach the only option available for large stones was the surgical removal by open surgical technique such as

nephrolithotomy and pyelolithotomy, which was associated with a high risk of per-operative and post-operative complications. Percutaneous nephrolithotomy (PCNL) is now being considered as the hallmark of treatment for large renal stones for past three decades(7). With advancement in the modern equipments and technology PCNL has now become the gold standard for this disease, resulting in reduced recovery time, shorter hospital stay and decreased morbidity and mortality (8, 9). PCNL is generally a safe procedure with a fewer complications(10). Some of these complications occur secondary to tract access with injury to the adjacent organs such as lung, pleura, liver, colon and spleen. It may also be associated with general complications which can occur with any surgical procedure including hemorrhage, post-operative pain and fever (11). However, PCNL has advantage of having small incision, much less number of complications and shorter convalescence period (10). Neverthless rate of stone removal has been reported to be almost 95% following PCNL. Due to limited facility of ESWL and PCNL open surgery remains the most commonly used procedure in many developing countries including Pakistan(12). Though many centres in Pakistan are now offering these procedures but still limited to cities. Mini PCNL (mPCNL), was introduced in early 1990s, where the modified procedure was *defined as a PCNL performed through a track of < 22 F* (13, 14). The first report of mPCNL presented 60 pediatric patients, who underwent PCNL using a 16-F sheath and 11-F Pediatric cystoscope (15).

Case Report

A 13-years-old boy was brought to the urology clinic by his mother with 7-months history of left flank pain. He has recently developed pain in the right flank and dysuria for the same duration. He had been seen by many general practitioners and was on empirical medication off and on, with partial or no remission in symptoms. The patient looked well with no specific physical signs. His urine culture showed no bacterial growth. The ultrasound KUB reported bilateral renal stones with hydronephrosis, which were further confirmed on x-ray KUB which showed radiopaque shadows in both renal areas. A CT - KUB was done which revealed 3.5 cm size stone in renal pelvis and 1 cm size stone in lower pole with moderate hydronephrosis on left side and multiple stones without hydronephrosis on right side (Figure. 1 a and b).

a b

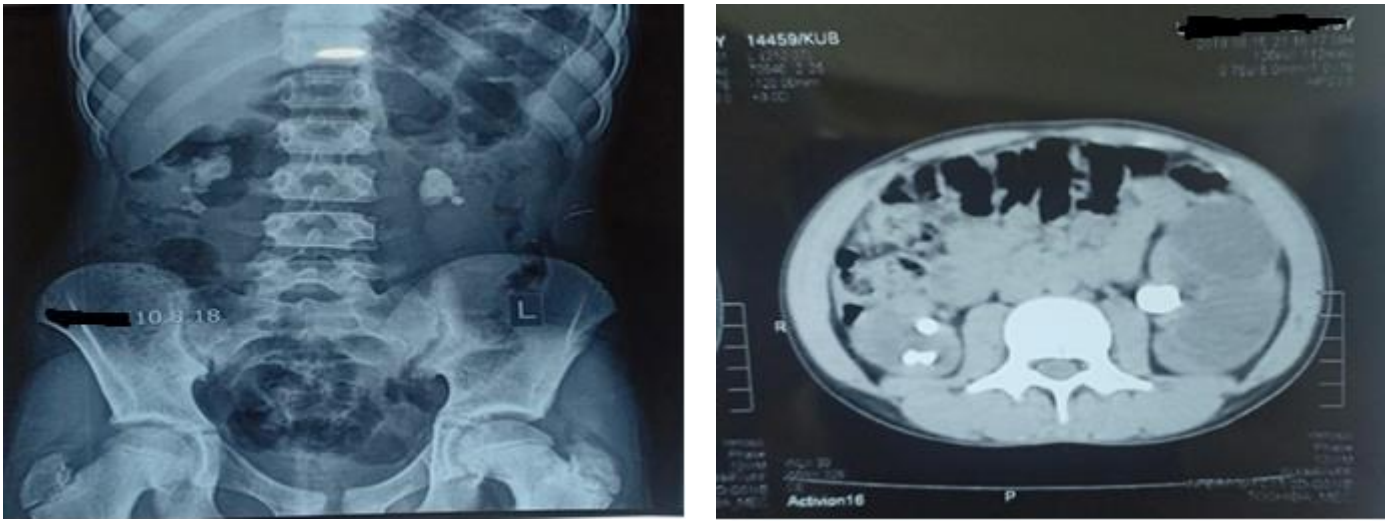

Figure 1: X-Ray (a) and CT KUB (b)of the 13-years-old child showing bilateral stones with left hydronephrosis

He was planned to undergo a mini PCNL in two stages, we opting to operate on the left side first. With the help of a 10 F pediatric cystoscope, a retrograde urogram (RGU) was done using a 4F ureteric catheter. A single radiopaque stone of approximately 3.5 cm size was visualized in the renal pelvis. A smaller stone (approx. 1 cm) was seen in the lower pole. Initial puncture was done in the lower pole with 'Bull's Eye' technique. Serial dilatations were done up to 21F and a 22F Amplatz's sheath was placed. Both stones were fragmented with pneumatic lithoclast. One fragment of stone migrated into upper calyx. For complete clearance of stones, another puncture was done with a simple dilator in upper pole. Outer sheath of nephroscope was used in the tract and the stone was retrieved. The total time for the procedure, from RGU to skin suturing, was 60 minutes.

After the procedure, abdominal distension was seen when the patient was turned supine. Aspiration with 10cc syringe in the dependent part of abdomen was done. The aspirant was clear fluid and was thought to be irrigating fluid. An intra-peritoneal drain was placed. The patient's postoperative recovery was uneventful. The drain output was 800cc on first postoperative day. On 3rd postoperative day, the drain was removed and patient was discharged. The postoperative x-ray KUB showed no evidence of residual stones (Figure. 2).

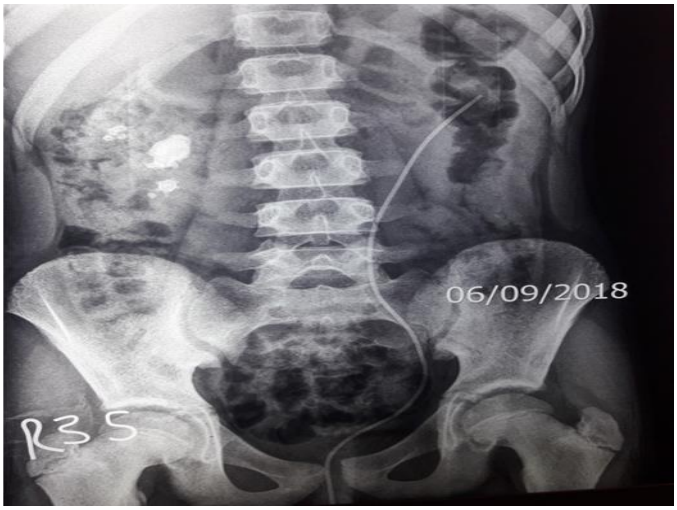

Figure 2: Postoperative x-ray KUB

DISCUSSION

Surgical treatment of renal tract stones has been revolutionized in the recent past with availability of more minimal invasive options and less invasive techniques including ESWL and PCNL (16). PCNL is now being commonly performed procedure in patients presenting with renal stones (17). It is generally safe procedure with quick recovery and shorter hospital stay. Hemorrhage has been reported to the most frequently occurring complication, which can occur during needle passage or at the time of tract dilatation (18-20). Other complications, rare albeit life-threatening, include injuries to colon, pleura, splenic and liver (11). Hydroperitoneum, although a recognized complication of PCNL, is rarely mentioned in the literature. Chen Rui *et al.,* in his article published in 2011, reported 2 cases of hydroperitoneum in a series of 86 adult patient undergoing PCNL (21). Liu Zhong-Ze *et al.* report 11 cases of hydroperitoneum as complication among 436 patient series of PCNL done in age group 14 to 71 years (22). Alfonso Benincasa *et al.* report same complication occurring in two patients, both adults, who were managed by placement of intra peritoneal drain (23).

No such complication in pediatric age group has ever been reported. We report hydroperitoneum occurring in a 13-year old boy, who was successfully treated by placement of an abdominal peritoneum drain.

CONCLUSION

Hydroperitoneum is a rare complication of conventional PCNL. Based on our experience and review of published literature, our case of hydroperitoneum after mini PCNL, is the first of its kind. A high degree of sensitivity and knowledge of this complication during PCNL in children would help identify and manage this complication in future. We recommend examination of abdomen post-PCNL in every child before he/she is brought out of anaesthesia.

Ethical Consideration: This is a case report, anonymized. Patient's permission was sorted before using imaging.

Conflict of Interest: There is no conflict of interest.

Funding: No funding involved in this case report.

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