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Editorial

Authorship issues

It is not uncommon to find problems related to authorship in the manuscripts submitted for the GMJ. More than in original articles, this problem is frequently seen in case reports submitted.

Management of some patients nowadays requires multi-disciplinary approach with significant contributions from specialists in many disciplines. This applies mainly for complex clinical situations and case reports generally address these complex clinical problems. In some instances the list of authors does not reflect this multi disciplinary contribution despite very clear evidence that many specialties have involved in solving the particular clinical problem addressed in the case report.

Person who qualifies to be nominated as an author has been clearly stated. The International Committee of Medical Journal Editors (ICMJE) has stated that *"an author must be validated for: a) conception and design of the study, or analysis and interpretation of data; b) drafting of the article or critical revision of its content; c) final approval of the version to be published; d) responsibility for all the aspects of the work."* All authors listed in the paper must meet the four criteria and those who have made contributions in other ways should only be acknowledged.

Although it is clear that the above definition has been made focusing articles based on research projects, the basic concepts addressed in the definition can be applied for case reports. Based on the contribution made in solving the clinical situation, in the patient management, drafting the paper and critical revision of the content, the decision has to be made whether to include such contribution under authorship or acknowledgement.

Finally, authorship reflecting the multi disciplinary approach in the management of the patient addressed in the particular case report only enhances its validity and perhaps acceptability for publication.

Sarath Lekamwasam
Eisha Waidyarathne
Editors / GMJ

GALLE MEDICAL JOURNAL; INSTRUCTIONS TO AUTHORS

The Galle Medical Journal is published by the Galle Medical Association. The *journal* is published biannually, March and September and the submissions are accepted throughout the year. The aims of the journal are to foster co-operation among the medical fraternity and to be a forum to make literary contributions, share experiences encountered in medical practice, update their knowledge and have debates on topics related to all aspects of medicine. Also, we attempt to cater to the educational needs especially of the postgraduate trainees. The *Journal* publishes original articles, reviews, leading articles and case reports. When an article is submitted for publication, we expect that the work it reports has not been published, submitted simultaneously to another journal or accepted for publication elsewhere. All manuscripts will be reviewed anonymously before acceptance.

Manuscripts must be submitted with the text type written in 12-point Times New Roman font double spaced. Text and all illustrative material should be submitted in two hard copies and the electronic version in Microsoft Word document format. In order to avoid delay we require authors to comply with the following requirements. **All manuscripts should accompany a covering letter indicating the number of words in the manuscript, institution where ethical clearance was granted, conflict of interests and contact details of the corresponding author.**

Types of contributions:

Review articles and Leading articles: We encourage submission of review or leading articles which are less than 3000 words in length and address topics of current interest. They should be supported by no more than 20 references. Submissions may be subjected to external review before acceptance.

Original articles: Should normally be in the format of introduction, methods, results and discussion. Each manuscript must have a structured abstract of 200 words. The text should be limited to 3000 words and maximum of 5 tables/figures taken together with no more than 15 references. Lengthy manuscripts are likely to be returned for shortening. The discussion in particular should be clear, concise and should be limited to matters arising directly from the results. Avoid discursive speculation.

Case Reports: These should not exceed 750 words and 5 references; no abstract is required. Case report should be informative and devoid of irrelevant details. Case report should have a clear message or learning point and this should be highlighted adequately. Rarity of the case does not mean it is suitable for publication. Written consent of the patient should be submitted together with the case report, especially when photographs are used.

References:
These should conform to the Vancouver style. The reference in the text should be numbered consecutively in Arabic numerals in parentheses in the same line of the text in the order in which they appear. The first five authors should be listed and if there are more than five, then the first three should be listed followed by et al. Examples are given below:

1. Kumar A, Patton DJ, Friedrich MG. The emerging clinical role of cardiovascular magnetic resonance imaging. *Canadian Journal of Cardiology* 2010; **26**(6): 313-22.

2. Calenoff L, Rogers L. Esophageal complication of surgery and lifesaving procedures. In: Meyers M, Ghahremani G, eds. Iatrogenic Gastrointestinal Complications. New York: Springer, 1981: 23-63.

Units / Abbreviations:

Authors should follow the SI system of units (except for blood pressure which is expressed in mmHg). Authors should use abbreviations sparingly and they should be used consistently throughout the text.

Manuscripts that do not conform to these requirements will be returned for necessary modifications.

Manuscripts should be addressed to Chief Editors, Galle Medical Association, Teaching Hospital, Karapitiya and all soft copies should be sent to *gmathk@gmail.com*

Undiagnosed depression among older adults living in a semi urban community in Southern Sri Lanka

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ABSTRACT

Introduction: Depression is common in late life. Sri Lankan studies on depression in community living elderly are scarce. A sample of community living older people was assessed for presence of depressive symptoms.

Methods: Randomly selected 300 people aged above 50 years from Bope-Poddala MOH area who were not diagnosed with neurological illness, major psychiatric illness and not having severe visual or hearing impairment were screened using Geriatric Depression Scale-Sinhala version (GDS-S). Medical records were examined and diagnoses of non-communicable diseases were recorded;

Results: The majority were females (n=183, 61%). The mean age was 62 (SD=8) years. Twenty nine percent of subjects were still working. Thirty six percent (males - 40% and females - 36%) had sought medical treatment for non-communicable diseases.

Twenty five participants (10% of males , 7.% of females) met criteria for depression (GDS-S score >= 6). Nine percent of those who were aged 50-64 years and 7.4% of those who were older than 64 years were found to have depressive symptoms.

Conclusions: One in 12 older adult showing depressive symptoms signals the need of professional attention to the mental health well-being of older adults. As one in three of these people already attend health care services for their medical problems, these services can provide assessment of depression to make appropriate referrals/ interventions.

Keywords: Depression, GDS, older adults

Introduction

World Health Organisation has ranked depression as the 4th leading cause of disability worldwide (1) and projects that by 2020 it will become the 2nd leading cause (2). Depression is common in late life. According to Blazer it affects nearly 5 million of 31 million Americans aged 65 years or more (3). Furthermore, major depression is reported in 8-16% of community dwelling older adults. Prevalence of depression among Sri Lankan older population is not known. A study in Colombo district has found that lifetime prevalence of depression in that sample (6.6%) is lower compared to that (16.6%) in the USA (4). Depression is associated with functional and cognitive decline affecting person's quality of life. The patient and the family may fail to recognise it as an illness as symptoms of depression could be misinterpreted as signs of ageing. If untreated, depression could cause impairment in different spheres of life resulting in delayed recovery from medical illnesses and increased risk of suicide.

According to the World Bank, Sri Lanka has the fastest ageing population in South Asia (5). It also reveals that country's share of population over 60 years old in 2000 was 9.2% which will reach almost 30% by 2050. With growing number of elderly population in the country, health authorities need to plan services to cater for increasing needs. Studies on elderly depression will help to enhance services to improve mental well-being of the elderly.

The Geriatric Depression Scale (GDS) has been specifically designed to measure depression in older population (6). The shorter form of GDS with 15 items (GDS-15) has been widely used for research and clinical purposes as a time saving and acceptable substitute for 30 item GDS (7, 8). The 15 item GDS has been validated for Sri Lankan clinical population and it is culturally acceptable and easy to administer in outpatient settings in Sri Lanka (9). While English version of GDS-15 has the cutoff score of 5, cutoff value of GDS-S has been set as 8 with both specificity and sensitivity of 73.3%.

There are studies on prevalence of depression among different Sri Lankan populations. Study of patients aged 65 years and above admitted to National Hospital Sri Lanka (NHSL) found that 40% of the study sample have depression (10). In another study involving 100 subjects over 65 years of age admitted to NHSL found that over 60% of the sample met criteria for depression (11). A study on outdoor patients presented to the same hospital showed the prevalence of depression as 22.4% (12) However, in this study, the rate of prevalence was lower in older age group (above 61 years) compared to their younger counterparts (aged below 30 years). Other studies have also reported high prevalence of depression in patients with chronic illnesses (13, 14). Two community studies in Sri Lankan involving older adults report high prevalence of depression; one study which included predominantly a Sinhalese subjects has reported the prevalence rate of 27.8% (15) while the other study which included all three major ethnic groups reported the rate of 31.8% (16).

We screened an older population in a semi-urban community as a part of a larger study and in this paper we present data in relation to the presence of depressive symptoms in the sample which was screened.

Methods

We conducted a door to door survey and screened randomly selected people aged between 50 and 79 years from the Bope-Poddala Medical Officer of Health (MOH) area in Galle district. Those who had neurological illness, major psychiatric illness and severe visual or hearing impairment were excluded. A total of 300 individuals who met selection criteria and provided consent for the study were requested to fill the GDS-S. Those who indicated difficulty in filling the questionnaire due to the lack of literacy or due to visual problems were helped by the research assistants. Participants' medical records were perused and the presence of diabetes, hypertension, dyslipedaemia and ischaemic heart disease was recorded.

GDS-S score ranges from 0 to 15. In order to compare presence of depression in our sample with that in other Sri Lankan samples, we considered the cut off as 6. In our literature search two studies using GDS-15 in Sri Lankan community samples were found and in both studies a score of 6 or more has been considered as a suitable threshold (15, 16). We did not use the cut-off of the validation study (9) as it has been validated for a clinical sample.

Our study was approved by the Ethical Review Committee of Faculty of Medicine, University of Ruhuna.

Results

The majority were females (n=183, 61%). The mean age was 62 (SD=8) years. Twenty eight percent of participants were still working. Majority of the participants (83%) were living with spouse and 37 were widowed. Furthermore, 94% reported that they handled money and 97% reported as actively involved in household activities. Thirty six percent of participants (n=107) had sought medical treatment for one or more of the following conditions: diabetes, hypertension and dyslipidaemia and ischaemic heart disease. This group consisted of 40% of males and 36% of females. Forty three percent of the older age group(aged above 64 years) had one or more of those conditions against 30.7% of their younger counterparts ($p = 0.03$). Table 1 shows demographic and clinical characteristics of the sample.

Table 1: Demographic and clinical characteristics of the sample

Characteristic	Total = 300, Number (%)
Age (in years)	
50 - 64	179 (60)
65 - 79	121 (40)
Sex	
Female	183 (61)
Male	117 (39)
Educational level	
Up to 5 years	30 (10)
6 to 10 years	180 (60)
More than 10 years	89 (30)
Employment status	
Employed	84 (28)
Retired / Not working	122 (41)
Never worked	92 (30)
House-hold monthly income	
Up to Rs. 10,000	130 (43)
Rs. 10,000 to Rs. 20,000	101 (34)
More than Rs. 20,000	69 (23)
Non-communicable diseases	
Diabetes	40 (13)
Hypertension	73 (24)
dyslipidaemia	33 (11)
Ischaemic heart disease	18 (06)

GDS-S score of the sample ranged from 0 to 13. A total of 25 (8.3%) subjects met criteria for depression. This group included 10.3% of males (n=12) and 7.1% (n=13) females. We used cross tabulation to compare some demographic and clinical characteristics between two subgroups; those who met criteria for depression and those who did not. These data are summarised in Table 2. The proportion of subjects with GDS-S score 6 or above was less than 10% in each of the both age groups; i.e. those who were between 50 - 64 years of age and those who were above 64 years.

We failed to detect statistically significant associations between demographic variables and presence of GDS criteria for depression. Twenty four percent (n=6) of those who met criteria for depression had been diagnosed with one or more of the non-communicable disease we recorded. Statistically non-significant difference was observed between subjects with one or more non-communicable diseases and those without, in relation to presence of depression (5.6% versus 9.9% respectively).

Table 2: Associations of GDS-S score with demographic and clinical characteristics of the sample

		GDS-S score ≥6 n (%)	GDS-S score <6 n (%)	*p* value
Age	50 - 64 years	16 (9%)	162 (91%)	0.63
	65 - 79 years	9 (7.4%)	112 (92.6%)	
Gender	Male	12 (10.3%)	104 (89.7%)	0.32
	Female	13 (7.1%)	170 (92.9%)	
Education	Upto O/L	19 (9.1%)	190 (90.9%)	0.50
	Above O/L	6 (6.7%)	83 (93.3%)	
Monthly Income	Upto Rs.10,000	14 (10.9%)	115 (89.1%)	0.17
	> Rs. 10,000	11 (6.5%)	159 (93.5%)	
Employment status	Working	9 (10.8%)	74 (89.2%)	0.35
	Not working	16 (7.5%)	198 (92.5%)	
*Diseases	Present	6 (5.6%)	101 (94.4%)	0.19
	Absent	19 (9.9%)	173 (90.1%)	

* One or more of the following conditions; diabetes, hypertension, dyslipidaemia and ischaemic heart disease

Discussion

Our study found that one in every twelve older adults living in a semi-urban community show depressive symptoms. Two available community based studies conducted on the prevalence of depression among older Sri Lankan populations report higher prevalence rates (more than 25%) compared to the present study. This difference could be due to sample selection criteria; our sample was comparatively functional older adults free of severe physical disabilities or major neurological or psychiatric conditions. A population based survey in a sample aged 15 years and above living in Colombo district found that life time prevalence of depression is 6.6%, rising up to 11.2% if functional impairment criterion was excluded (4). Comparing our findings with the prevalence reported in this study is not appropriate due to notable difference in the age of the study samples. Moreover, the variations in prevalence rates reported by different studies could be due to the differences in the instruments used to detect depression.

It is known that depression is common among females and the risk for depression increases with age. However we failed to find associations between demographic variables and presence of depression. It could be due to the small sample size and also sample selection biases.

Studies involving older patients report high prevalence rates of depression ranging from 22.4% to 60% (11, 12). However our study sample comprised of comparatively healthy older adults due to exclusion criteria we used. Furthermore, a large majority of the study participants were actively involved in their house-hold activities. Therefore our finding that 8.3% of comparatively healthy community living older adults having depressive symptoms signals the need of professional attention to the well-being of older population. It also underscores the importance of community studies to explore depressive symptoms in elderly in large and more inclusive samples.

As one in every three of these people are already in contact with health care services for their medical problems, these services can provide assessment of depression to make appropriate referrals/ interventions to improve the mental health well-being of older adults. However the evidence from elsewhere indicates that depression is under-diagnosed in primary care settings (17).

None of the participant, who met criteria for depression, had approached psychiatric services. It could be due to misinterpretation of depressive symptoms as signs of ageing by these individuals and their families. It may indicate the need for mental health awareness raising programmes targeting general public.

Our study is not without limitations; relying on a self-administered questionnaire to detect depressive symptoms especially when the sample consists of 10% of participants only with primary education is a major limitation. Although we assisted these people by reading out the items and marking their responses, the written language used in the scale could be complicated for them. The other limitation is our sample selection criteria; we studied comparatively healthy older adults from a semi-urban area. Therefore our findings cannot be generalised for Sri Lankan older population.

Acknowledgements

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Generative concern; a promising health promotion component for well-being of the elderly in Galle, Sri Lanka

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ABSTRACT

Introduction: Population of Sri Lanka is aging fast. Chronic diseases in the elderly have become a vital public health issue. Generativity, concern for teaching and nurturing the next generation, is identified as an important component of well-being of the elderly. This study assessed the generative concern in a sample of elders in Galle, and correlates of the construct.

Methods: A cross-sectional survey was conducted using an interviewer administered questionnaire in a sample of elders, aged 60 years and above in Galle. Loyola Generative Scale (LGS) and Kesslar 10 scale was used to assess generative concern and psychological stress respectively.

Results: A total of 208 elders were surveyed. The average age of the participants was 71 years (SD=7.5). The overall mean score of the LGS was 47.4 (SD=7.4). Generative concern was found to be higher among those elders whose spouse is alive ($p<0.05$), and among those who reported having had a secure income ($p<0.05$). About 39% of the participants were suffering from psychological distress. Generative concern was found not to be related to the level of psychological distress in this target group.

Discussion: The average LGS score of the elders in this sample is higher than that of elders in many countries where the figure was around 40. Thus, a majority of the elders in this target population seems to have a greater generative concern. There is a possibility, therefore to improve health and well-being of the elderly in the area by developing and implementing intergenerational social and community development programmes.

Keywords: Elders, generative concern, psychological distress, Sri Lanka

Introduction

Aging has become a major public health issue in Sri Lanka (1-3). Increasing life expectancy at birth and declining mortality rates in the past few decades have made the population of Sri Lanka one of the fastest aging populations in the Asian region. (2). In 2001, 10% of Sri Lankans were elders (aged 60 years and over) and by the year 2030 it is estimated that about 22% of the population in the country will be elders (2, 3). There are many health, social and ecological implications that have occurred as a result of population aging in the country (2, 4-6). Elders are more susceptible to chronic diseases and deterioration of in their physical functions. They also have less access to proper health care facilities, poor income and are at risk of social isolation. Depression and cognitive impairments are common in the elderly. According to a study done in a semi-urban elderly population in Sri Lanka, about 4% of the participants have dementia (7). Another study involving 100 geriatric patients in a tertiary care hospital in the country revealed that about 69% of

them have depressive symptoms and about 56% have some form of cognitive impairment (8).

In the past, care of the elderly is a family responsibility (2, 9). However, mainly due to socio-cultural changes in the country over the last few decades, elderly care by the family members is becoming less prevalent in the contemporary society. Resource limitations and economic pressures do not allow the government to provide adequate support for elderly care services. In this context, population ageing has become a crucial health and development issue in the country.

Psychosocial factors, such as loneliness and low self-efficacy are vital in understanding the overall health of the elderly. Elder's feelings of loneliness have been linked to functional decline and increased risk of depression and other chronic ill-health conditions (10, 11). Loneliness in older adults may be partially driven by disruptions in meaningful social engagement (12-14). Generativity defined as concern of the well-being of younger generations and its related components, such as feeling socially useful or needed, are increasingly being studied and used as protective factors of successful aging (10, 14). Greater perceptions of generativity have been linked to better health outcomes and longevity in elders (10, 15). This study aimed at assessing generative concern and possible correlates of this construct in elders living in Galle.

Methods

A cross-sectional community survey was conducted in Galle using an interviewer-administered questionnaire. Two Grama-Niladari (GN) divisions (villages) were randomly selected; one urban and one rural. A household from each selected GN division was selected randomly, and then, subsequent households were identified by following a random direction from the previous household until the desired sample size was achieved. Elders living in the selected household were invited to participate in the survey. Non-response rate was 5%.

The required sample size was calculated using the figure of the anticipated population mean score of the Loyola Generativity Scale (LGS) as 40 (SD = 10) as indicated by a previous research (16). Thus, the minimum sample size required to estimate the mean LGS with the margin of error as 2 with 95% confidence was 96. Assuming that there is a gender difference of generative concern, the required sample size was determined as 192 (96 men and 96 women).

Loyola Generatively Scale (LGS) and Kessler Psychological Distress Scale (K 10) were used in the survey. LGS has 20 items of generative concern; concern for the care and development of the next generation and it is a reliable and valid scale to measure generative concern (17). The average LGS score is 40-41 for the older people in many countries and higher scores in the LGS indicate higher generative concern. Convergent validity of the LGS was tested with self-rated psychological health measured in a 1-5 Likert scale. Kesslar 10 is a 10 item scale to measure psychological distress of people in community settings (18). K10 has been validated in Sri Lanka and the cut off value is set as 16 (19). Higher values of K10 indicate higher level of psychological distress. Ethical approval for the research project was obtained from the Ethics Review Committee, Faculty of Medicine, University of Ruhuna, Galle, Sri Lanka.

Results

A total of 208 elders were surveyed. The majority were Sinhala (99%) Buddhists (98%). The demographic profile of the participants is given in Table 1.

Correlation between LGS score and self-rated mental health in the participants was positive indicating that those who have a good mental health tend to have a higher scores in their generative concern ($r = 0.29$, $p<0.01$). In general, it is found that generative concern is positively associated with psychological well-being (14, 15). Further investigations, however, are needed to validate the LGS in this target population.

The overall mean score of the LGS was 47.4 (SD = 7.4). Results indicate that generative concern, measured by LGS scale, is neither related to gender nor age. There is a slight increase in the LGS score with increasing level of education, but no significant association was found. Generative concern is found to be higher among those whose spouse is alive compared to others ($p<0.05$), and among those who were having a secure income compared to others who did not have any regular income ($p<0.05$).

Table 1: Demographic characteristics of the participants (n=208)

Characteristics	Number and percentage (or mean and SD)
Gender	
Male	82 (39.4%)
Level of Education	
Primary or No Education	43 (20.7%)
Secondary	114 (54.8%)
Higher	51 (24.5%)
Age	70.6 years (SD = 7.5)
Living status	
Living alone or only with the spouse	38 (18.3%)
Living with spouse & children/relatives	170 (81.7%)
Occupation	
Currently have a paid job/ pension	80 (38.5%)
Not having/ had a regular paid job	128 (61.5%)
Monthly income	
Less than Rs. 10,000	117 (56.3%)
Rs. 10,000 - Rs. 20,000	51 (24.5%)
More than Rs. 20,000	40 (19.2%)

Table 2: Mean scores of LGS by demographic characteristics (n=208)

Characteristics	Loyola Generativity Scale (Mean and SD)	
Gender		
Male	47.6 (7.2)	$p = 0.82$
Female	47.3 (7.6)	
Level of Education		
Primary or No Education	46.3 (6.3)	$p = 0.44$
Secondary	47.4 (8.2)	
Higher	48.3 (6.2)	
Age		
60 - 69 years	47.1(7.1)	$p = 0.81$
70 - 79 years	47.8(7.7)	
$\geq$ 80 years	47.3 (7.4)	
Spouse Alive / Dead		
Spouse is alive	48.2 (6.9)	$p = 0.03$
Spouse is dead	45.9 (8.1)	
Occupation		
Currently have a paid job/ pension	49.8 (6.9)	$p = 0.01$
Not having/ had a regularly paid job	45.9 (7.3)	

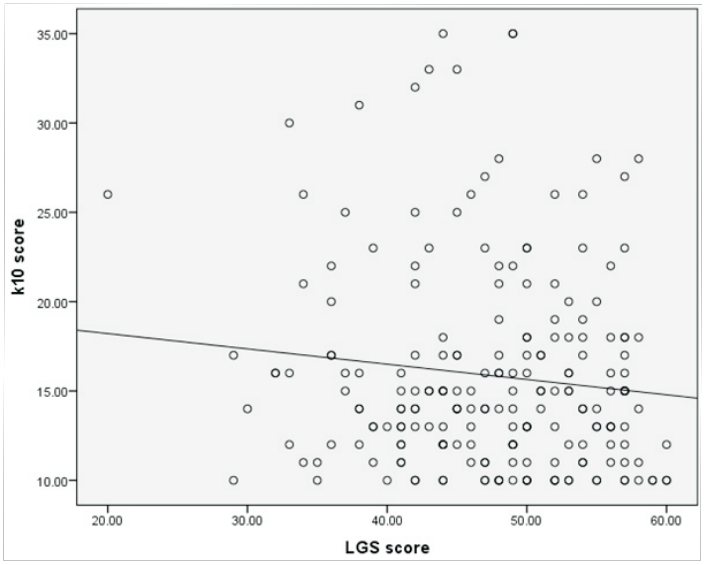

Figure 1: Scatter plot of K 10 score by LGS score

About 61% of the participants had K10 score less than 16. Generative concern is found not to be related to the level of psychological distress of the participants (Correlation coefficient (r) = -0.11, p = 0.12) (Figure 1).

Discussion

Population aging is common to many developed as well as developing countries in the world today. The increases in the prevalence of chronic disease including depression and dementia in the elderly have led many governments to initiate health promotion and protection actions that prevent or at least delay adverse health consequences of the elderly (6, 20, 21). In healthy aging, elders' desires and abilities to transfer of their knowledge and wisdom to younger generations (*i.e.* generativity) have been identified as an important health promotion component (14, 15).

In this study, a slightly higher mean score of generative concern in Sri Lankan elders, compared to such figures in elders in other countries was observed (14, 16, 21). The findings also indicate that gender and age are not related to generative concern. Chronic diseases that become more prevalent with increasing age may bar senior elders being generative (16, 23). However, the observed difference of generative concern of elders in this population setting may be due to their active life style. Being an agricultural society, many elders in the country are engaged in some form of work for living. Social security benefits available for them are limited (9). As a result many elders may have opportunities for meaningful generative activities (16, 21). As seen in many other countries, women outlive men in Sri Lanka. This would result gender based health disparities in senior elders where women being highly subjected to suffer from chronic diseases. However, Sri Lankan older women's feeling of obligation to serve as their family's primary caregiver and active life style may stimulate them to develop generative concern and actions (4, 16). Factors such as less education and poverty have shown to impede elder's access to generative activities (23). Our findings support this assertion. In our study, elders whose spouse is alive and who have a secured income seem to be having a greater generative concern compared to the others. Our observations that 61% of the elders in our sample were free from moderate or severe psychological distress, and having an overall mean score of LGS as 47.4 in the total sample may indicate that the majority of elders in Galle would have a commitment and desire to nurture younger generations.

Generative concern is an important construct for successful aging. It should be noted however that generative concern and acts per se would not predict social and psychological well-being in the elderly (10), but would depend on the extent to which generative concerns and related actions are appreciated and valued by the younger generations.

Elders' generative concern and related behavioural and demographic correlates have not been studied well in the Sri Lankan context. Thus, further research on situational and environmental factors related to generative concern, and evaluation of effectiveness of the intergenerational programs in promoting health of the elderly are warranted.

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Adverse maternal and perinatal outcomes of elective induction of labour at term vs spontaneous onset of labour; a comparison study

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ABSTRACT

Introduction: Induction of labour (IOL) is a relatively common procedure in the present obstetrics practice. Decision is made by obstetricians when the extra uterine life is more favourable for the baby than intrauterine environment. However there is evidence that IOL may adversely affect both maternal and perinatal health.

Methods: A group of 75 mothers who underwent IOL was compared with an age-matched sample of same number of mothers who underwent spontaneous onset of labour (SOL) at term at Teaching Hospital Mahamodara. Data were collected from bed head tickets. Main maternal and perinatal outcomes were compared using chi-square and t-tests.

Results: There were no statistically significant differences in the basic demographic characteristics of the two groups. Mothers with IOL had significantly high rates of caesarean section (p=0.011) and prolonged hospital stay (p<0.001) compared to SOL group. There were no statistically significant differences in the two groups with regards to duration of labour (p=0.073), APGAR at 10 minutes (p=0.466) and Special Care Baby Unit (SCBU) admissions (p=0.405).

Conclusions: Mothers who underwent elective IOL at term had increased rate of cesarean section and prolonged hospital stay when compared to mothers who had SOL. The two groups were comparable with regards to adverse perinatal and maternal outcomes.

Keywords: Induction of labour, spontaneous onset of labour

Introduction

Induction of labour (IOL) is a process of commencing labour artificially by uterine stimulation. This is carried out if the wellbeing or life of mother or child is threatened by continuance of the pregnancy (1). This procedure is relatively common in modern obstetric practice and is on rising trend. Rate of elective IOL varies worldwide being 6% to 20% of pregnancies in developed countries like United Kingdom (2).

In modern concept of active management of labour, IOL is an essential component. Main indications for IOL are post-date pregnancies (beyond 41 weeks of gestation), pregnancy complicated with medical disorders (gestational diabetes mellitus, pregnancy induced hypertension and connective tissue disorders, etc.) and fetal growth restriction.

Prolonged pregnancy occurs in 5 to 10% of all women (3). Epidemiological study supports the view that a pregnancy beyond 40 weeks of gestation is associated with increased perinatal risk (4). This may be even higher for south Asian women (5). Compared with expectant management, IOL is associated with fewer perinatal deaths and caesarean

sections (6). IOL for other obstetric complications are generally done following optimum fetal lung maturity (beyond 37 completed weeks). Success rate of achieving vaginal delivery is dependent on optimal ripening of cervix prior to induction proper.

Maternal and neonatal effects of IOL are unclear with conflicting evidence. There are many studies performed to compare women with IOL to those undergo spontaneous labour (SOL). Unfortunately, labour induction may itself causes problems especially when the cervix is not favourable. Obstetric problems associated with IOL with an unfavourable cervix include caesarean section, prolonged labour, postpartum haemorrhage and traumatic birth. It is likely that some of these unwanted outcomes result from intervening when the uterus and cervix are not ready for labour (7). IOL is widely practiced to try and prevent the problems mentioned above and improve the health for women and their infants (8).

With retrospective evidence indicating that early term delivery confers higher risk for subsequent adverse neonatal and childhood outcomes compared with later term weeks, the American College of Obstetrics and Gynaecology has issued recommendations to reduce non-medically indicated induction of labour at less than 39 weeks of gestation (9). Late term or post term pregnancy (greater than 41 or 42 completed weeks of gestation) is a common indication for induction. Recent evaluation of strategies to reduce induction in the absence of medical indication before 39 weeks of gestation has reported decrease in admission to the neonatal intensive care unit (NICU), conflicting results about stillbirth and little information about caesarian delivery, historically one of the key concerns surrounding induction without medical indications (10).

Induced labour also has an impact on the birth experience of women. It may be less efficient and is usually more painful than spontaneous labour and epidural analgesia and assisted delivery are more likely to be required (11). Nearly 45% of women considered that labour was more painful than expected with induction. The limited available evidence suggests that women feel less satisfaction with experience of IOL than SOL (12).

It is evident that maternal and neonatal outcomes are badly affected with the induction of labour without clear justification leading to increased health cost to a country. Overall, this adversely affects the health economy of countries with low resource setting and increased perinatal and maternal morbidity and mortality.

Even though several studies done with this regards in other countries, we have anecdotal evidence pertaining to IOL. Our pregnant population is different, ethnically and geographically, when compared to the rest of the world and the maternal and neonatal outcomes of Sri Lankan obstetric population following IOL are largely unknown. The aim of this study was to determine rate of adverse maternal and perinatal outcomes of elective induction of labour compared to spontaneous onset of labour.

Methods

This study was carried out as a comparative cross-sectional study at Teaching Hospital Mahamodara, Galle from January 2017 to March 2017. We studied pregnant women at term (gestational age between 37 completed weeks to 41 weeks) who had either elective IOL or SOL. Inclusion criteria were pregnant women at term with singleton live pregnancy that had induction of labour or spontaneous labour. Exclusion criteria were maternal sepsis following delivery, pre labour rupture of membrane, fetal growth retardation and fetal anomalies. Mothers were recruited for the study from postnatal wards. Consecutive eligible postnatal mothers were selected with age matched control (similar age in years in both group) subjects who delivered her baby on the same day. Consideration was made to select control group to have gestational age at least within 07 days of study subjects.

Data was obtained from Bed Head Tickets using data sheet. Data sheet was developed to get required variables including basic characteristics, details of labour, maternal and perinatal outcomes. The main maternal outcome variables were caesarean section rate, duration of labour (time duration from admission to labour ward to delivery), maternal hospital stay (time duration from delivery to

discharge), genital tract trauma and postpartum haemorrhage. The perinatal outcomes were APGAR score at birth, neonatal Special Care Baby Unit (SCBU) admissions and neonatal deaths. Ethical clearance was obtained from the Ethical Review Committee of the Faculty of Medicine, University of Ruhuna. Permission to conduct the study was granted by the Director and relevant consultants at Teaching Hospital Mahamodara, Galle. Written informed consent was obtained from all postnatal women who participated in the study. Statistical Package of Social Science (SPSS) version 20 was used for data analysis and $p<0.05$ was considered statistically significant. Categorical data were compared with the Chi-square test and continuous variables were compared with the t-test.

Results

Total number of women in the study was 150 with 75 in each group and the two groups were comparable with regard to the basic demographic characteristics (Table 1).

There was significantly higher rate of cesarean section in the IOL group compared with the SOL group (Table 2).

The rate of caesarian section in the IOL group was almost double compared to the SOL group. In contrast vaginal delivery rate was higher in women with SOL than the women with IOL. However, there was no significant difference in the duration of labour between SOL (mean: 177.61 $\pm$ 34.54 minutes) and IOL (mean: 218.48 $\pm$ 40.03 minutes) women with vaginal delivery($p = 0.15$).

There was a significant difference in the number of days of hospital stay between the two groups. The mean duration of hospital stay in the IOL group was almost double when compared to the SOL group (Table 3).

There was no 3rd degree or 4th degree genital tract trauma among women in the two groups. Each group had one woman with postpartum haemorrhage.

There was no significant difference in APGAR score at 10 minutes at birth between the two groups (Table 4).

There was no significant difference between the two groups with regards to the SCBU admission of their babies (Table 5). There was only one neonatal death which was in the IOL group.

Table 1: Basic characteristics of women with SOL and IOL (n=150)

Characteristics	SOL (75)		IOL (75)		
	Mean	SD	Mean	SD	*p* value
Age (years)	26.6	4.8	28.7	5.0	0.058
Gestational age (days)	278	5.7	271	5.8	0.055
BMI	21.0	2.3	20.0	2.2	0.053

Test – independent sample t

Table 2: Cesarean section rate between two groups of SOL and IOL

	LSCS	NVD / Instrumental	X^2	*p* value
SOL	14	61		
	18.67%	81.3%	6.481	0.011
IOL	28	47		
	37.3%	62.7%		

Test – Chi-square test

Table 3: Maternal hospital stay between the SOL and IOL groups

Hospital stay in days	Mean	SD	*p* value
SOL	2.79	1.4	<0.001
IOL	5.85	2.0	

Test - independent sample t

Table 4: APGAR score for the SOL and IOL groups

APGAR score at 10 minutes	Mean	SD	*p* value
SOL	9.97	0.23	0.46
IOL	9.93	0.21	

Test - independent sample t

Table 5: SCBU admission between the SOL and IOL groups

SCBU admission	SOL	IOL	*p* value
Yes	4 (5.3%)	2 (2.6%)	0.41
No	71 (94.7%)	73 (97.4%)	

Test - chi square test

Discussion

This study showed elective IOL at term had increased rate of cesarean section and prolonged hospital stay but no adverse perinatal and maternal outcomes.

According to the study, the rate of cesarean section was higher among women with IOL compared with SOL across all gestational ages (beyond 37 completed weeks) and parity. The NICE guideline (updated version) in July 2008 states that IOL beyond 41 weeks do not increase the rate of caesarean section compared to expectant management. The difference we observed may be due to IOL in earlier gestation associated with partially favorable cervix. A study done at Kathmandu Medical College and Teaching Hospital (KMCTH) involving three hundred women with singleton pregnancies from 40 to 42 weeks of gestation without any risk factors showed that elective induction of labour is associated with even lesser rates of caesarean section and reduce the NICU admissions when compared with spontaneous onset of labour (14). Same findings were observed in a Canadian study conducted in 22 hospitals throughout Canada among 3,400 pregnancies at 41 or more weeks of gestation.

Another significant finding in this study was that prolonged hospital stay in IOL group compared to SOL group. This observation may be due to increased caesarean section rate in women with IOL as usual duration of hospitalisation following uncomplicated caesarean delivery is approximately three days whereas in spontaneous vaginal delivery it is 24 hours.

Our results show that there are no significant differences of adverse maternal outcomes such as duration of labour, obstetric anal sphincter injuries / genital tract trauma, and postpartum haemorrhage in the two groups. Cochrane database in 2006 reported that there was no significant difference between labour induction and control groups for postpartum haemorrhage (6). This is in line with our findings. Even better outcomes have been reported in a population based study; elective IOL from 38 weeks onwards was associated with a decreased odds of postpartum haemorrhage compared with expectant management. Induction of labour was also associated with decreased odds of anal sphincter injury compared with expectant management (14). This may be due to the large sample size involved in above study.

Our results indicate that there are no statistically significant differences with regards to adverse perinatal outcomes such as perinatal deaths, APGAR at 10 minutes at birth (p=0.466), PBU / NICU admission (p=0.405) between the two groups. There was only one perinatal death in IOL group due to congenital heart disease. Similar results have been reported in a Cochrane database in 2006; there was no statistically significant difference in NICU admissions and APGAR scores less than 7 at 5 minutes when labour induction was compared with expectant management (6). A randomized controlled trial performed among 508 women by Heimstad *et al.* on IOL serial antenatal fetal monitoring in post term pregnancy has found no difference between the induced and monitored groups regarding neonatal morbidity or mode of delivery, and the outcomes were generally good (15).

Conclusions and recommendations

This study showed that elective IOL at term is associated with increased rate of cesarean section and prolonged maternal hospital stay but not with adverse perinatal and maternal outcomes when compared with SOL. Every consultant led obstetric unit should have evidence based guidelines for elective IOL for appropriate case selection. Optimum cervical ripening should be carried out prior to induction, especially for medical inductions.

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Quality and standards of hospital food service; a critical analysis and suggestions for improvements

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ABSTRACT

Hospital meals are an integral component of the care given to inward patients and it facilitates recovery and contributes to patient satisfaction regarding the overall treatment experience. Providing nutritionally appropriate and microbiologically safe food that satisfies the patient's appetite should be the aim of every hospital food service. However, scant attention is given to food service in many health care settings, resulting in meals of inferior quality, excessive food wastage and even health risks for patients. This paper presents a brief review of the importance of nutritional care and hospital food services, challenges faced by the hospital food services, different mechanisms of operation and the key indicators of food service quality and standards. The limitations in the current food service system in Sri Lankan health care settings and possible areas for improvement are also outlined.

Introduction

Hospital meals are a critical component of care given to inward patients and it improves the well-being of patients (1, 2). Provision of meals is a part of the routine in-patient care worldwide, adding more 'hospitality' to the services. It has been shown that much of the overall satisfaction of hospital stay is linked with the hospital diet. A proportion of hospitalised patients are dependent solely on hospital food for their nutritional requirements (3). That requires hospitals to maintain the quality and nutritional value of the food being served.

Malnutrition is common among hospitalised patients (4, 5). These patients have a prolonged hospital stay and a greater risk of developing complications and infections (5). In addition, hospital food can provide an example of healthy eating to the public that helps them to model their eating behaviour. On the contrary, inappropriate hospital meals can create a significant threat to patient's health (6). The food provided by the hospital may not meet individuals' specific nutritional needs or a wrong therapeutic diet could be assigned to the patient, resulting in malnutrition and poor control of the disease status. Also contamination of food with pathogenic organisms can pose potentially serious health risks.

Notwithstanding this essential role of improving health of the patients and facilitating a fast recovery, nutritional care and food services are an underdeveloped aspect of care provision in many health institutions (7). However, existing evidence also suggest that notable improvements can be achieved in these services, while keeping the costs stable (6).

The challenges faced by hospital food services are multi-faceted due to the wide range of dietary needs of the patients. Dietary needs vary based on age, religious and cultural practices and medical problems. Health care institutions in a competitive environment are seeking novel approaches to meet these challenges through constant upgrading of their meal distribution services.

Food service systems in health care settings

A number of food service systems are used for provision of hospital meals (8). The variation is based primarily on the methods of preparation and distribution / delivery of meals. The traditional food systems are based on delivering 'freshly cooked meals' prepared in the hospital kitchen using locally sourced ingredients. There are newer methods including the use of pre-cooked, frozen or chilled products which need to be re-heated upon delivery at the point of use or delivery of pre-assembled, microwavable plated meals (9). The two most common forms of food delivery are plated meal services and bulk meal services. Plated meals are served in the kitchen on plates and the bulk meal system delivers food to the wards. In addition to patient meals, some hospital catering systems may provide food for employees and visitors as well (5).

The traditional hospital food services have the disadvantage of not being 'efficient and patient focused' (1) as meals are distributed according to set-schedules, disregarding patient preferences. As a solution, health care institutions aiming for higher service standards have moved to more patient-driven meal systems such as using a 'room service' approach where patients can order meals from a diet specific menu. 'Snacks between meals' and 'out-of-hours' services for patients who could not have a meal during normal meal times are some other steps used to provide choice meals for patients (6).

The hospital 'food chain' which includes all the processes involved in provision of patients' meals - from ordering of raw materials / food to waste management - is a team effort. Careful consideration given to nutritional quality and safety of the meals, from the point of medical officer ordering the diet down to the level of the food suppliers, administrative staff responsible for procurement and quality control of raw materials, kitchen staff and staff of wards, can contribute towards patient satisfaction and fulfillment of the objectives of prescribing a meal.

Patient satisfaction with hospital meals

The contribution of hospital meals towards patient well-being depends ultimately on whether the patient has consumed the meals provided. Studies worldwide suggest that plate wastage is a common problem faced by hospital catering (1, 10) and any food left uneaten fails to achieve its intended benefits. Customer satisfaction has been identified as an essential component in successful operation of hospital food services (8).

Hospital food is generally regarded as unappetizing due to many reasons (11). Patients consider hospital meals to be undesirable due to issues related to quality of food such as menu items, portion size, taste, temperature, texture and variety of food as well as poor service standards such as tray presentation, sanitation, availability of nutritional information and responsiveness to food problems (12-20). Attitudes of staff serving food and absence of disturbance are also related to satisfaction with food service (21) .

Research has proven that patient satisfaction on hospital food service can be improved by interventions that improve meal delivery (1,2) and quality of food (21). Such measures will improve consumption of the complete meal, with the additional advantage of reducing food wastage.

Key components of hospital food standards

With rising competition in the health care industry, improvement of hospital catering could be one aspect in improving patient satisfaction on overall hospital stay. It has been suggested that food and nutritional care quality in a hospital must be evaluated and deemed fit to enhance the efficacy of its services (7). Hospital food standards can form a part of the overall service quality standards along with other supportive services (11, 22). This requires development of guidelines and qualification and assessment of food services on a regular basis.

An independent panel established by the Department of Health, United Kingdom identified potentially relevant hospital food standards and assessed them for their applicability to hospital food and catering services in National Health Services (NHS) hospitals (5). The Panel identified several key characteristics of good nutritional care for hospitalised patients based on recommendations of the Council of Europe Alliance (UK). According to these recommendations, everyone using healthcare and care services should be screened to identify the presence or the risk of malnutrition, should have a

personal care support plan to identify their nutritional needs and mechanisms for meeting these needs. The care provider must include specific guidance on food and beverage services and nutritional care in its service delivery and accountability arrangements. The committee emphasizes that the people using care services be given the opportunity in planning and monitoring of arrangements for food service. In addition to above, it is important to provide an appropriate environment enabling patients to enjoy their meals and safely consume their food and drinks (known as protected mealtimes). The staff must have the appropriate skills and competencies needed to ensure that the nutritional and fluid needs of patients are met, preferably through regular training on nutritional care and management. The food services and facilities need to be flexible and the care-providing organisation should have a policy for food service and nutritional care, which is centered on the needs of the consumers. Finally, the food service and nutritional care is provided safely and the contribution of consumers and all others in the successful delivery of nutritional care should be valued by everyone working in the institution. These guidelines can be adopted to suit the needs of different local health care settings.

In addition to the nutritional care aspects, it is important to emphasize the necessity of ensuring optimal consumption through careful planning and delivery of meals tailored to the needs of individual patients as well as minimising of hospital food waste and adopting good buying practices to ensure sustainability of the catering services (5, 9).

Improving food service standards in Sri Lankan health care settings

According to the Hospital Manual published by the Ministry of Health, Sri Lanka, a patient's diet for a day is the entire requirement of food for a period of 24 hours, starting from 12 noon of a particular day up to 12 noon of the following day (23). The nature of patient's diet is determined by the medical officer, as it is regarded as a part of the treatment and the Head of the institution is expected to pay a special attention in ordering, accounting, controlling and economising diet.

According to Hospital Manual of the Ministry of Health, the role of hospital diet extends into many areas. These include providing relevant diet depending on illness, provision of hygienically prepared, balanced diet and preventing unhygienic food from coming to hospital, serving patients meals at a fixed time to avoid disturbance to other patient care activities, facilitating poor patients specially from distant areas and restriction of unauthorised persons coming to the wards under the pretext of bringing food to patients (23). Although all government hospitals in Sri Lanka provide diet for the patients free of charge, only a minority of patients opt to have meals through hospital food service. A situational analysis involving four major hospitals in Galle and Rathnapura districts revealed that only 30% or less of the inward patients consume hospital meals (unpublished data). A study conducted at Teaching Hospital Karapitiya found that only 27% of inward patient consumed hospital diet (20). The major reasons for poor consumption were the tastelessness, unpleasant aroma of food and shyness to eat hospital food. The Ministry of Health has issued a new circular in 2015 to improve the quality of hospital diet in government hospitals, which will hopefully resolve some of these deficiencies.

In reviewing literature, Hartwell et al. concluded that the 'cost' of providing meals and the method of food service adopted do not show any association with the patient satisfaction with regards to hospital meals (8). Although providing choice meals for patients may be an unattainable target in the context of free health care, a number of other steps can be taken within the current system that will enhance the quality of nutritional care and food service standards. The conventional food service practiced in Sri Lankan hospitals can be further improved without radical changes to the system and additional costs, simply by paying a little attention to the key characteristics highlighted above.

The meal quality and food safety aspects of the food service in Sri Lankan health care settings can be far from optimal. A recent study on assessment of quality of food service at a tertiary care hospital revealed that the general cleanliness, availability of physical and human resources, hygienic practices of staff and the quality, quantity and diversity of the hospital meals were unsatisfactory (24). None of the

staff had undergone any training on food safety and hygiene after initial training before recruitment. Periodic training of the kitchen staff on food safety and hygiene and better cooking methods can be implemented to improve the unsatisfactory aspects of the food service. Regular supervision and surprise observations at the kitchen by the area public health inspector or higher authority can further ensure the standards of food safety and hygiene.

The standard diet in a Sri Lankan government hospital can be adjusted to cater to the specific nutritional needs according to patient's disease. Provisions for a special diet offered to patients with tuberculosis, leprosy, cancer and mental illness, staying in respective specialized hospitals are already in place (23). However, patients with malnutrition and other diseases requiring specific dietary management often depend on other sources for their meals, which could make them nutritionally vulnerable. The hospital diet can be a model for the patients to follow after discharge, thus a golden opportunity for patient education is available through the hospital food service, which should be utilized to the fullest benefit of patients.

The services of dietitians can contribute to the success of hospital food service. Their services range from menu planning and recipe development to nutritional analysis of hospital meals that match the patients' needs (9). In the absence of such services, the recent appointment of medical officers qualified in human nutrition and dietetics to major hospitals may bridge this gap to a certain extent, by ensuring the nutritional standards of the meals provided at the hospital. Nutritional assessment and nutritional counseling on discharge (if necessary) can be incorporated to routine care of all patients. However, lack of widespread availability of nutritionists / dieticians in all hospitals to guarantee such standards is a limitation.

One of the main reasons for refusal of hospital food by the patients is the timing of meals, which sometimes are interfered by external factors such as ward activities. When there is no designated dining area within the wards, the crowded and confined surrounding can inhibit any desire for eating. 'Protected meal times' can be introduced with a suitable environment for dining to make meal times pleasant. No ward activities should be scheduled during meal times. The availability of a separate dining area will prevent the embarrassment of having to consume meals in public.

Training the health personnel in interpersonal skills and communication is believed to be more cost effective than developing technical facilities in improving patient satisfaction (25). Such training can resolve issues related to staff attitudes and behavior in providing food services. Regular monitoring of the quality of nutritional care of hospitalised patients in relation to the key standards and the appraisal of the standards of hospital food service including consumer satisfaction are of paramount importance to optimize the overall in-patient care. Such attempts will not only improve the efficient use of available resources, but will be cost-effective in the long run through minimizing food wastage and preventing food borne infections.

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Use of bedside ultrasound by non-radiologists for the rapid diagnosis of life threatening conditions

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Case Report

A 39-year old female with a history of Type 2 Diabetes for the last two years was admitted with progressively worsening shortness of breath, non-productive cough and right sided pleuritic-type chest pain of two-days. She was a non-smoker and denied history of fever, night sweats, or tuberculosis exposure. She had lethargy, loss of appetite and unexplained loss of weight over the last month. She denied a history of haemoptysis, orthopnoea, paroxysmal nocturnal dyspnea or leg swelling.

On examination, she was average built and afebrile. However, she was dyspnoeic with respiration rate of 28 breaths per minute and peripheral oxygen saturation was 95% on room air. She was not pale and her heart rate was 126 beats per minute with blood pressure of 115/78 mmHg. Her jugular venous pressure was not elevated but her heart sounds were soft and no pericardial friction rub could be heard. There was a right sided moderate pleural effusion with no evidence of mediastinal shift. No cervical or generalised lymphadenopathy or organomegaly observed.

The possibility of tuberculosis or malignancy complicated with pleural and pericardial effusions was considered. ECG showed sinus tachycardia with low voltage complexes. Urgent inward ultrasound scan (Figure 1) done by junior doctors in the medical team showed a significant pericardial effusion with mild right atrial collapse. The inferior vena cava was non collapsible.

Initial investigations revealed normal blood counts and blood picture showed no abnormality. Initial ESR was 32 in the first hour and LDH was 852 U/L (normal 230-450). Arterial blood gas analysis showed an oxygen partial pressure of 85 mmHg with normal HCO_3 and lactate level. Chest radiograph revealed right sided moderate size pleural effusion and widening of the mediastinum with widened cardiothoracic index (Figure 2). Mantoux test was negative and no Acid Fast Bacilli were isolated in sputum.

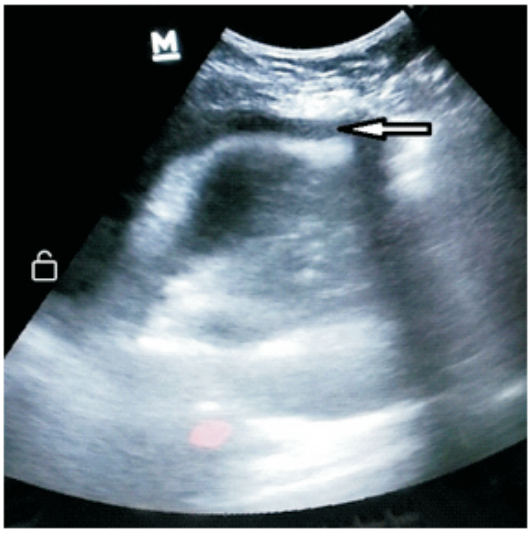

Figure 1: Bedside ultrasound scan showing evidence of a pericardial effusion

Based on US scan findings, the possibility cardiac tamponade was suspected and urgent cardiology referral was done. 2D Echocardiogram revealed a large pericardial effusion (size 8 mm anteriorly) with extrinsic compression of the right atrium and a mixed echogenic mass. An urgent pericardial aspirate was performed and 120 ml fluid was

removed. Pericardial sheath was kept in-situ in order to aspirate the rapidly filling effusion. Pericardial and pleural aspirates were blood stained and had negative cultures and showed no malignant cells. CECT chest and abdomen revealed an anterior mediastinal mass, most likely a non-Hodgkin's lymphoma (Figure 3). Mediastinal biopsy confirmed the diagnosis of high grade Non-Hodgkin's Lymphoma (NHL) and the patient was referred for chemotherapy and oncology follow-up.

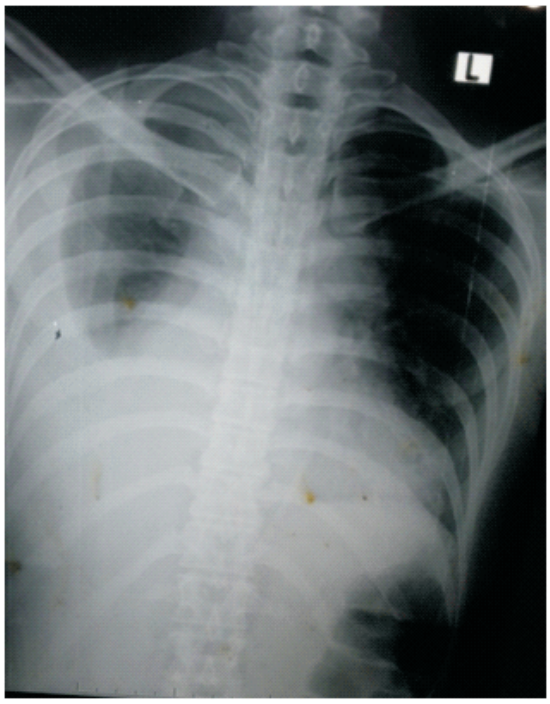

Figure 2: Chest radiograph showing right sided moderate pleural effusion with wide mediastinum

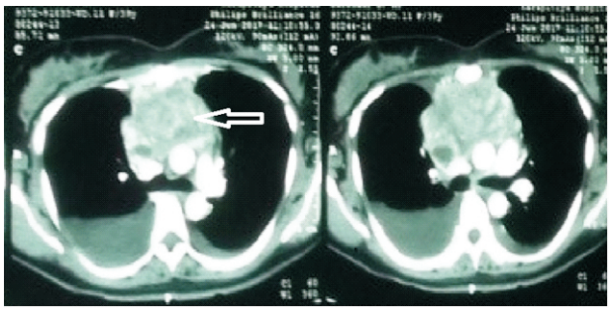

Figure 3: CECT Chest showing a heterogenous anterior mediastinal mass

Discussion

In lymphoma, either non-Hodgkin's or Hodgkin's, the frequency of pleural effusion is around 20-30%, and the involvement of peritoneal and pericardial cavities is usually uncommon (1). But, in advanced stage III and IV NHL patients, echocardiographic examination has revealed the presence of pericardial effusion in nearly half of patients (2). Pericardial effusion due to a malignant anterior mediastinal mass could occur due to direct invasion of the pericardium and / or haematogenous spread. Signs of cardiac tamponade are late, hence, the diagnosis of this potentially fatal condition, should be confirmed by echocardiography based on subtle clinical signs. Cardiac tamponade may occur before significant clinical signs develop. Therefore, an early echocardiography on clinical suspicion should be done to detect early 'compensated' stage of pericardial effusions (4).

In ward ultrasound scan facility is not uniformly available in all hospitals in Sri Lanka and introduced only recently in tertiary care hospitals to facilitate early detection of plasma leakage in dengue patients.Bedside ultrasound can play a crucial role in early diagnosis of certain other life threatening conditions. In our patient, the critical pericardial effusion was detected by bedside ultrasound scanning performed by junior doctors who had no formal training on radiology. This early detection led to rapid diagnosis and referral for pericardial aspiration.

There are many reports where bedside ultrasonography has been used in screening and diagnosis of a multitude of diseases. Farsi D *et al*, suggested that cardiac ultrasound by trained emergency medicine residents is comparable to echocardiography performed by cardiologists and it could be used as a reliable tool and screening test for initial testing of patients suspected of cardiac abnormalities in the acute setting (5). Two non-randomized studies concluded that non-radiologist doctors could use of portable ultrasonography, effectively, in musculoskeletal disorders after a short training session (6, 7). This shows that bedside ultrasonography would be widely used especially in emergencies.

Conclusions

This case history illustrates that in the absence of typical clinical signs, bedside ultrasonography by junior doctors can detect critical pericardial effusion. In ward bedside ultrasound scan has a potential role in aiding rapid diagnosis of certain life-threatening conditions. Therefore, training junior doctors on basic ultrasound examination would be helpful in early detection of critical conditions.

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Oncocytoma in the deep lobe of the parotid gland; the need of a meticulous surgical approach to avoid postsurgical complications

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Introduction

Salivary gland tumours arising from parotid gland affect 1 : 100,000 people world-wide, representing 2 - 3% of tumours of the head and neck and 1% to 1.5% of all neoplastic tumours. However only 12% of parotid tumours are located in the deep lobe (1, 2).

Oncocytoma (oxyphilic adenoma) is a rare benign tumour that arise mainly in salivary glands (0.4% to 1% of parotid tumours), thyroid, parathyroid, esophagus, respiratory tract, liver, stomach, kidneys and adrenal glands mainly in sixth decade with female predominance (1). WHO classifies oncocytic neoplasms mainly into three categories: oncocytoma, the commonest, oncocytosis and focal adenomatous oncocytic hyperplasia (3). Since most parotid oncocytomas are benign, parotidectomy with preservation of facial nerve is the preferred surgical treatment (4).

Case Report

A 61-year old woman presented to Oral and Maxillofacial Unit (OMFU) of Teaching Hospital Karapitiya with a left pre-auricular swelling for four years duration. She also complained of resent onset swallowing difficulty, change in voice and sleep disturbances. There was 3 cm x 4 cm, firm, tender, well circumscribed, deep tissue attached lump resulting elevated ear-lobe pinna and obliterated posterior mandibular sulcus without facial nerve dysfunction (Figure1). Intra-orally left lateral pharyngeal wall, oropharynx and soft palate showed a moderate swelling.

Ultra-sound guided fine needle aspiration cytology (FNAC) showed benign salivary tissues, however CT scan showed a homogenous deep lobe lesion extended to parapharyngeal space displacing carotid vessels (Figure 2). Superficial lobe of left parotid was normal. Intra-oral explorative biopsy of deep lobe through left lateral pharyngeal wall was done with guidance of CECT and under general anesthesia and it showed a benign oncocytoma. Considering the functional disability with progressive enlargement of the lesion left total parotidectomy with preservation of the facial nerve was considered for the patient.

Standard left superficial parotidectomy was performed with modified Blair incision (Figure 3a). Facial nerve landmarks were followed to identify and preserve facial nerve trunk, two main divisions and sub-divisions in anterograde manner.

Brownish red lesion in the deep lobe was noted and negative results of needle aspiration excluded the possibility of vascular origin. Facial nerve and all its branches were carefully separated from the deep lobe (Figure 3b). Tumour with the deep lobe was dissected from important surrounding structures and vessels within parotid parenchyma. Stylomandibular ligament was cut to approach parapharyngeal space for complete removal of the lesion. Complete delivery of the deep lobe including the lesion was done following blunt dissection of base of the skull structures. Histology of the removed tissue confirmed benign oncocytoma (Figure 4).

Patient recovered with *House-Brackmann* grade IV weakness of left facial nerve as a post-operative complication (Figure 5). Eye care and physiotherapy were provided and improvement in nerve weakness (*House-Brackmann II)* was observed in six months review (Figure 6).

Figure 1: Pre operative view showing left parotid region swelling

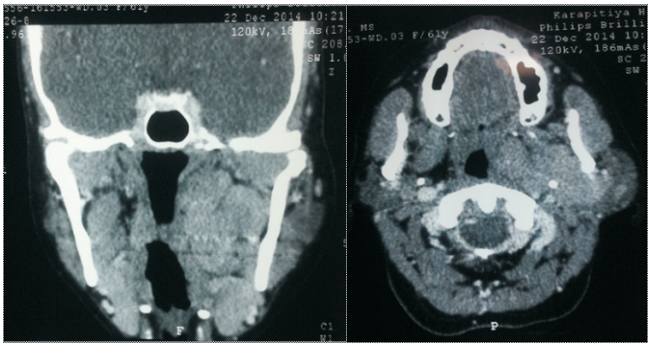

Figure 2: CT scan coronal and axial cut showing hyper dense deep lobe of left parotid gland

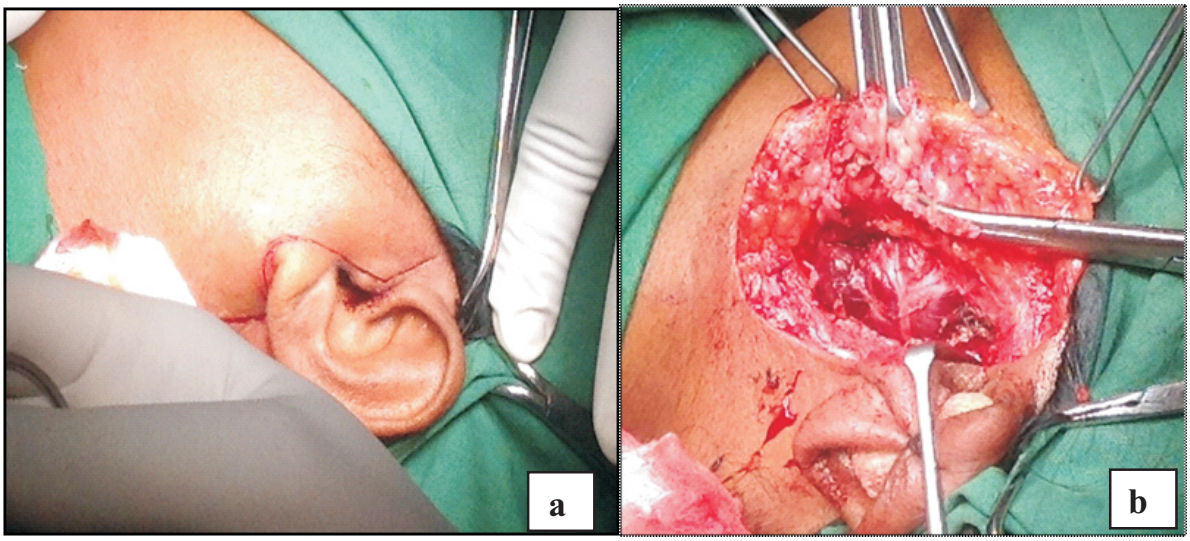

Figure 3a: Modified Blair incision to expose the left parotid region

3b: Facial nerve overlying the lesion (deep lobe-parotid) after removing the superficial parotid lobe

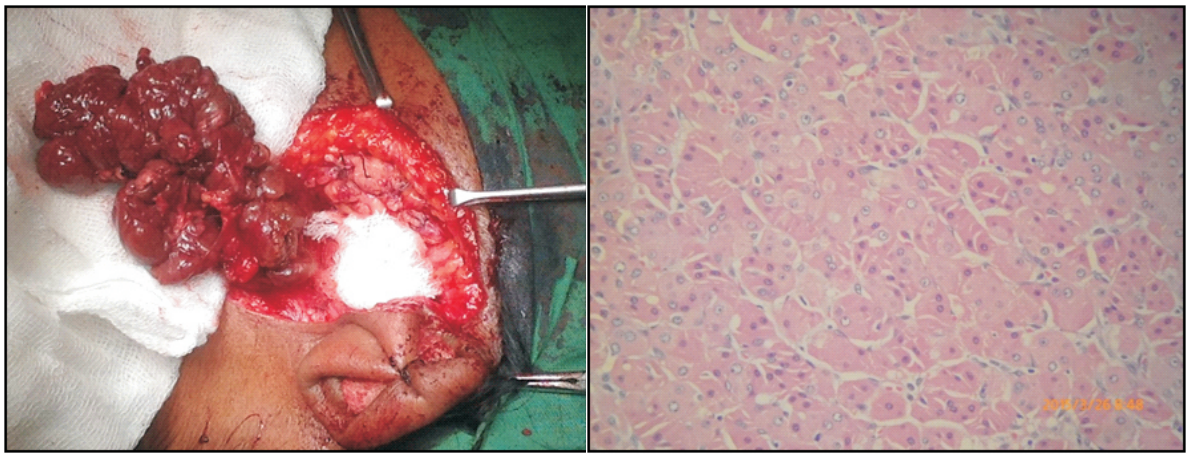

Figure 4: Excised deep lobe lesion and H & E section showing features of oncocytoma

Figure 5: Postoperative view showing left facial nerve dysfunction (*House-Brackmann* grade IV)

Figure 6: Recovered facial nerve function after six months (*House-Brackmann* grade II)

Written informed consent has been obtained from the patient to publish identifiable photographs.

Discussion

Elevation of ear lobe pinna, obliteration of the posterior mandibular sulcus and facial nerve weakness are cardinal extra oral features of a parotid tumour. However lateral pharyngeal wall and soft palate asymmetry suggest involvement of the deep lobe. Parotid duct orifice should be checked for any purulent discharge. Presence of pain, facial paralysis, rapid growth, ill-defined margins, and skin infiltration are characteristics of parotid malignancies (3,5). Except facial nerve involvement and parotid duct discharge, other cardinal features were seen in this patient. Sleep apnoea and alteration of voice resulted due to the extension of a part of deep lobe into the left para-pharyngeal space (4).

Ultrasonography and FNAC are the initial investigations for salivary gland tumours (3). Biopsy is contraindicated as it may cause neoplastic seeding and nerve damages. CECT and MRI provide better visualisation, radiological diagnosis and tumour extensions during treatment planning.

Histopathologically, oncocytoma is a well-circumscribed lesion composed of oncocytes, large uniform polygonal epithelial cells with eosinophilic granular cytoplasm and small round nuclei (5). Multi-nodular and multifocal hyperplastic variants have been described in literature (1).

No sufficient histological and ultra-structural differences among benign and malignant oncocytomas. However malignant counterpart has local invasion, destruction of surrounding structures, and regional lymphatic infiltration (5).

The widely practiced parotid surgical methods are, partial superficial parotidectomy, superficial parotidectomy, total parotidectomy with preservation of facial nerve and radical parotidectomy with or without neck dissection (4, 2). Since majority of oncocytomas are benign, total parotidectomy with preservation of facial nerve was the treatment of choice in this case.

Depending on the size of the deep lobe lesion surgical approach would vary. Smaller lesions can enucleate with the standard approach, however medium lesions need resection of stylomandibular ligament to approach parapharyngeal space. Large tumours need mandibulotomy at mid line, parasymphysial region or at ramus level combined with external approach (4, 2).

Facial nerve weakness is a major complication in parotidectomy. Transient nerve dysfunction and neuropraxia may occur due to surgical manipulation and postsurgical oedema in 8% - 65% cases which gradually resolves in 6-18 months postsurgically. In 1% - 3% permanent damage has been reported with axonotomesis. If accidental transection occurred it needs immediate repair of the nerve. Grater auricular and sural nerve grafts are effective when scarifying part of the main trunk.

House-Brackmann grading system is used to categorise facial nerve dysfunction (6). In this case, postoperative *House-Brackmann* grade lV had improved to grade II following discharge.

Frey's syndrome is another complication in up to 4% - 62% of post parotidectomy patients (4). Misdirection of parotid parasympathetic secretomotor fibers with superficial skin sympathetic fibers during healing is the cause. It spontaneously resolves within six months but insertion of fascia lata beneath the skin or superiorly based partial thickness sternocleidomastoid muscle flap is useful to avoid this complication. Botulinum toxin also can be used as a medical management.

In conclusion, occurrence of oncocytoma in a major salivary gland is a rare finding, and only few deep lobe parotid gland excisions were been discussed in medical literature. Moreover, advanced knowledge of clinical anatomy and surgical skills are essential for identification and preservation of the facial nerve, which is a critical factor during the surgery. Dysphagia, sleep apnoea and altered speech, which are late manifestations of a deep parotid tumour urged the treatment and the surgical outcome was satisfactory.

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Mechanical cardio-pulmonary support in critical care; early experience with Extracorporeal Membrane Oxygenation (ECMO) in Sri Lanka

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Introduction

Extra corporeal membrane oxygenation (ECMO) is a form of temporary support of the lungs and/or heart for severe respiratory and/or cardiac failure not amenable to conventional forms of treatment. It evolved as an extension of the technology involved in cardiopulmonary bypass in heart surgery but in this case for long term use in the intensive care setting.

Here we present the first successful use of ECMO reported in Sri Lanka.

Case Report

A 3.5kg baby boy was born via forceps delivery at 39 weeks of gestation. Thick meconium was noted at birth. His Apgar score was 4 at 1 minute and after resuscitation 9 at 5 minutes. His respiratory distress gradually worsened and he was transferred to the neonatal intensive care unit (NICU) at 6 hours of age.

The baby was intubated and ventilated and administered surfactant. As he remained acidotic with high pCO_2 and low pO_2 levels despite conventional ventilation High Frequency Oscillatory Ventilation (HFOV) was initiated. Satisfactory blood pressure control was achieved with minimal inotropes. Echocardiography showed severe pulmonary hypertension with a patent ductus arteriosus (PDA) and a small atrial septal defect (ASD), both with bidirectional shunting. A diagnosis of meconium aspiration syndrome (MAS) and persistent pulmonary hypertension of the newborn (PPHN) was made.

At day one, the ECMO team was consulted as the oxygenation index (OI) was 54. However, with HFOV, magnesium sulphate infusion, sildenafil and inotropes, the OI improved to 21, and it was decided to continue conventional treatment. As the C-reactive proteins and White cell count were rising, intravenous gentamicin and cefotaxime were started to treat secondary infections.

On the day 5, although the OI was 28, the ventilator settings remained high and the blood gases were unsatisfactory. Echocardiography revealed a pulmonary pressure gradient of 70 mmHg while the mean arterial pressure was 60 mmHg with a bidirectional shunting across the ASD. The PDA had closed. Computerized tomography scan of brain and coagulation screening were normal. At this point, a second consultation was made with the ECMO team and a decision was made to institute ECMO.

The Levitronix Centri Mag ECMO machine was set up and the circuit was primed in the NICU by the perfusionists. The baby was sedated and paralyzed. Venoarterial ECMO was instituted by the cardiothoracic surgical team at the bedside via an open method, cannulating the right common carotid artery and right internal jugular vein using two 10F Medtronic cannulae (Figure 1). The ventilator settings were adjusted to rest settings on conventional SIMV mode.

The vital signs, blood gases, coagulation tests including Activated Clotting Time (ACT), ECMO flow and gas sweep were monitored and appropriate changes were made to maintain normal parameters. Daily chest radiographs showed gradual improvement. No organisms were found on the septic screen. Echocardiography showed a steady reduction of pulmonary pressures to 28 mmHg by the age of 8 days. The shunt became left to right across the small ASD.

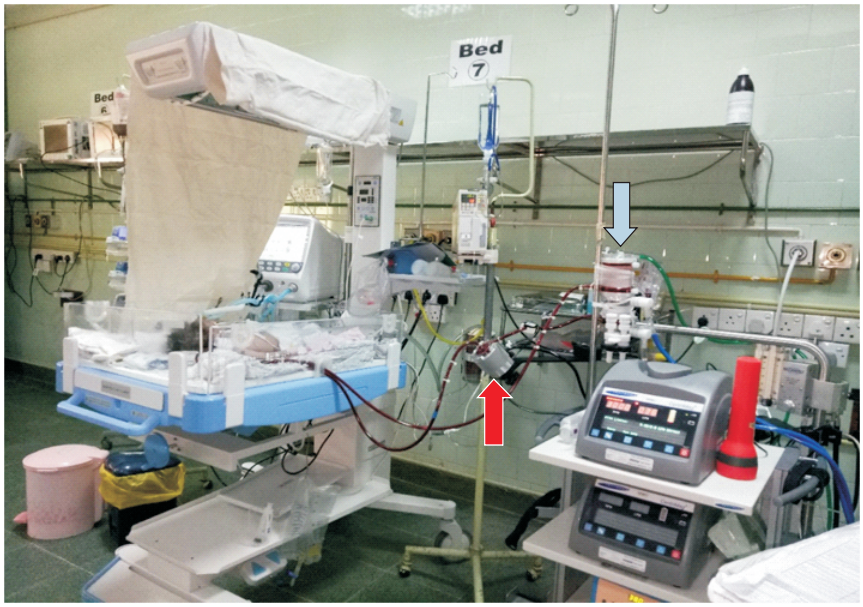

Figure 1: Neonate on ECMO: The centrifugal pump (the artificial heart-red arrowhead) sends deoxygenated blood through an oxygenator (the artificial lung- blue arrowhead) where it is oxygenated and returned to the body.

Fifty seven hours after initiating ECMO, a coagulopathy was noted with oozing from the neck cannulation site. As the respiratory and cardiac functions had recovered by then, the baby was weaned off ECMO. The trialing-off ECMO using a retrograde flow method was successful, and therefore, decannulation was done under sterile conditions by the cardiothoracic surgical team. The total ECMO run was 78 hours.

Forty hours later, the baby was weaned off ventilation and extubated. At 12 days of age the mother was able to initiate breast feeding and at 28 days, was discharged from hospital.

Discussion

In 1974, Dr. Robert Bartlett's performed the first ECMO on a critically ill neonate with meconium aspiration. She was later named Esperanza (meaning "hope" in Spanish) by the nurses and is alive today (1). Since then 86,287 patients have undergone ECMO around the world, of which the largest group consists of 29,942 neonatal respiratory patients (2).

The hypoxia and acidaemia of meconium aspiration constrict the pulmonary blood vessels, reduces the pulmonary blood flow, produces a right-to-left shunt and worsens hypoxia. ECMO effectively improves oxygenation and breaks this vicious cycle that perpetuates PPHN, as demonstrated here.

Our patient illustrates the philosophy on which ECMO has evolved: i.e., to support the heart and lungs to allow time or therapeutic intervention to allow for healing. During this time, ECMO prevents not only death from respiratory/cardiac failure, but also hypoxic brain damage and its dreaded sequelae: cerebral palsy.

This is our first success in ECMO, and marks a milestone in the history of cardiothoracic surgery, neonatology, pediatrics and critical care in Sri Lanka.

Acknowledgements

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Massive pericardial effusion in a patient during the recovery phase of dengue haemorrhagic fever

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Introduction

Dengue haemorrhagic fever (DHF) is characterized by plasma leakage into peritoneal and pleural spaces. However few clinically significant pericardial effusions were reported in DHF (1, 2). Herein we report pericardial effusion with cardiac tamponade during the DHF recovery phase.

Case Report

A 30-year old male presented with fever, arthralgia, myalgia and headache for 4 days.On admission he was febrile (100.4 F).His pulse was 72/min with blood pressure (BP) of 120/80 mmHg. His heart sounds were audible in normal intensity with no murmurs. Rest of the clinical examination was unremarkable. Investigations on the 4th day showed haemoglobin 14.6 g/dL, haematocrit 45, platelet count 65,000/uL and white cell count (WBC) 4,200/uL. On the 5th day ultrasound scan revealed free fluid in the Morrison's pouch for which appropriate fluid therapy was instituted. The lowest platelet count (12,000/uL) and the highest haematocrit (58%) were recorded on the 7thday. Repeat ultrasound scan showed ascites, pleural effusions but no pericardial effusion. He was discharged on the following day with no fever, normal appetite, haematocrit and rising platelets. Five days after discharge he developed fever, dry cough, pleuritic type of chest pain, progressive dyspnea and was admitted to hospital next day.

He was febrile (101 ^{0}F), on readmission with regular pulse at a rate of 108/min, BP was 110/70 mmHg and jugular venous pulse (JVP) was elevated. He had soft heart sounds with no murmurs. Left lung base was dull to percussion with absent breath sounds. Electrocardiogram revealed diffuse ST elevations with low voltage complexes. Chest radiograph revealed cardiomegaly with well demarcated cardiac borders without radiographic evidence of pulmonary oedema or pleural effusions. Transthoracic echocardiogram revealed a moderate pericardial effusion. Other investigations revealed a platelet count of 312,000/uL, haemoglobin - 13.2 g/dL, WBC of 10,000/uL with neutrophil of 83%. Dengue antibodies (IgM and IgG) were positive. C reactive protein was 96ng/dL and ESR was 90 mm in 1st hour. He was commenced on intravenous ceftriaxone 1g bd and clarithromycin 500 mg bd. On the following day he developed increasing dyspnea, tachycardia, elevated JVP and hypotension suggestive of cardiac tamponade. Chest radiograph (Figure 1) and repeat echocardiogram showed a massive pericardial effusion. He underwent pericardiocentesis where 300 mL of straw colour fluid was removed. Pericardial fluid was an exudate with no atypical cells, negative gram stain, bacterial culture and acid fast bacilli. Adenosine deaminase level was normal. He was commenced on ibuprofen 400 mg tid and prednisolone 30 mg daily for a presumed Dressler's syndrome (DS). Antibiotics were omitted after 3 days once blood, urine and pericardial fluid cultures became negative. Echocardiogram performed 7 days after pericardiocentesis showed mild pericardial effusion. He was discharged on 10th day after readmission (day 24 of illness)when chest radiograph (Figure 2) and echocardiogram revealed resolution of the pericardial effusion. His inflammatory markers improved and were normal at two weeks after discharge. Prednisolone and ibuprofen were tailed off over next 2 weeks as the repeat echocardiogram showed full resolution of the pericardial effusion. One month later he was apparently well and echocardiographic examination did not reveal recurrence of pericardial effusion.

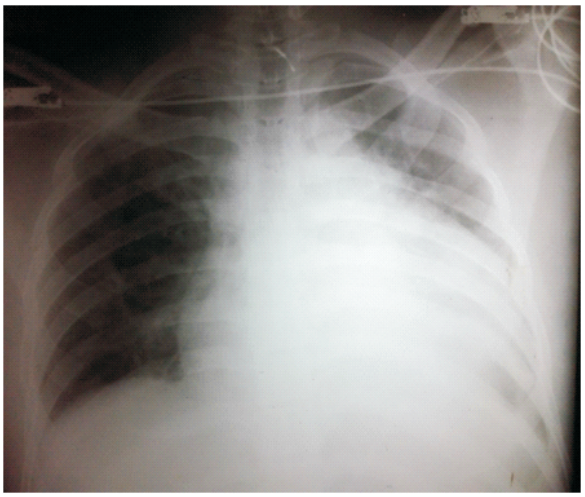

Figure 1: Chest radiograph on day 15 of the illness showing evidence of a massive pericardial effusion

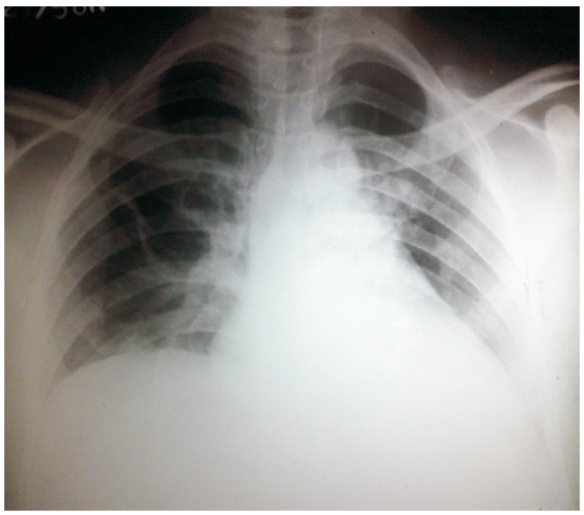

Figure 2: Chest radiograph after 10 days of treatment (day 25 of illness) showing resolution of pericardial effusion

Discussion

There were several cases of clinically significant pericardial effusions occurring during the critical phase of DHF (1, 2). The current case describes a pericardial effusion leading to cardiac tamponade in DHF during the recovery phase.

This patient who was discharged after recovering from DHF was readmitted with fever and progressive dyspnea. He had no evidence of hospital acquired bacterial infections (urosepsis, thrombophlebitis and endocarditis) which are known to occur in the recovery phase of dengue fever (3, 4).

He was commenced on antibiotics on the day 1 of second admission for suspected pyogenic pericarditis with effusion. Antibiotics were stopped 3 days later after ruling out a bacterial infection (negative blood culture, pericardial fluid gram stain and culture). He responded to steroids and NSAIDs with resolution of fever, chest pain and improvement of inflammatory markers. Pericardial fluid aspirate was an exudate with no malignant cells, negative gram stain, bacterial culture, normal ADA levels and negative culture for tuberculosis. Antinuclear antibody was negative making systemic lupus erythematosus unlikely which could have been precipitated with dengue (5). With the exclusion of other possibilities and response to anti-inflammatory therapy Dressler's syndrome was the most likely cause of pericardial effusion.

DS is an inflammatory pericarditis with or without pericardial effusion that occur secondary to injury (in the form of myocardial infarction, surgery, trauma or viral infections) to myocardium or pericardium (6, 7). The exact aetiology of DS remains unclear while autoimmune responses and viral infections have been considered as causes (7, 8).

Our case highlights the importance of considering DS as a differential diagnosis for pericardial effusion in a patient presenting with fever and dyspnea during the recovery phase of DHF.

Conclusion

Clinically significant pericardial effusions could occur with DHF not only during the critical phase but also during the recovery phase. High degree of suspicion is required for early detection and prompt treatment is necessary to reduce mortality.

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