

Pedia Companion Newsletter

Volume 1 | Issue 1| 2022

Dear Doctor,

Greetings from Micro Labs Limited. We are happy to bring you “**PEDIA COMPANION**” which contain latest and interesting news in the field of Paediatrics.

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Feel free to contact us at medicalservices@microlabs.in

Looking forward to your valuable feedback

Best Regards,
Medical Team, Micro Labs Limited

1. Laparoscopic sleeve gastrectomy in morbid obese adolescents with type 2 diabetes mellitus

Over the past three decades, obesity in pediatrics has become the major problem globally and it has increased over 3 times.¹ There is a serious association between obesity and metabolic diseases like hyperlipidemia, hypertension, and type 2 diabetes mellitus now in young age which were earlier seen in adult population.¹ The prevalence of obesity in Indian children ranges from 3.6%-11.7% and it is estimated that there will be around 17 million obese children in India by 2025.²

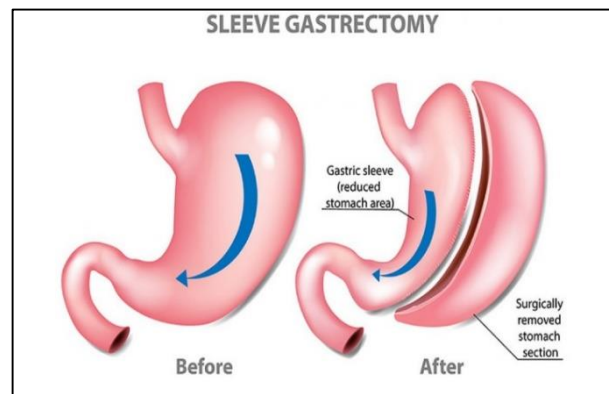
Laparoscopic sleeve gastrectomy plays a vital role as a metabolic control procedure rather than a bariatric restrictive procedure only.

Laparoscopic sleeve Gastrectomy (LSG) is a safe surgical weight loss procedure among children and paediatrics in effective weight management with proper efficiency and has evidences showing improvement in the associated co-morbidities which cause obesity in paediatrics.³

The main objective of the study is to assess the glycaemic patterns in the obese adolescents suffering from obesity associated with Type 2 Diabetes Mellitus (DM) who underwent LSG procedure.

This was a one-year prospective study. During the study period 352 morbidly obese pediatric cases were assessed in old bariatric clinic among which 57 cases were found to

be diabetic. Exclusion criteria includes the patients who were contraindicated to laparoscopy, need of insulin for glycaemic control, use of drugs causing obesity, and endocrine or genetic syndromes associated with obesity. Among which 12 had uncontrolled Diabetic Mellitus, 9 were diagnosed with endocrine and genetic syndromes, 4 were unfit for laparoscopy. Over 32 subjects enrolled in the study had morbid obesity associated with Type 2 DM and were planned for LSG.



Source: doctorbariatric.com

All the study subjects had a Body Mass Index(BMI) $\geq 35 \text{ kg/m}^2$ with the weight above 99th percentile and all the patients were diagnosed as type 2 diabetic with the fasting blood glucose of $>126 \text{ mg/dl}$ and $\text{HbA1c} > 6.5\%$. All the patients in the inclusion criteria were put on hypoglycaemic medications for a year and controlled successfully. The study mainly aimed at evaluating the effect of the surgery on T2DM by measuring the diabetic parameters HbA1c

and fasting blood glucose before and after one year of the surgery. When the post-operative levels of HbA1c and fasting blood glucose shows <6.5% and, 126mg/dl respectively without any diabetic medications then it is considered as remission of T2DM.

During the study 32 morbidly obese patients were enrolled in the study and their mean their mean age was 17 ± 0.97 years (11.5–18.5), mean weight was 141.19 ± 14.96 kg (117–167), and mean BMI was 49.2 ± 3.4 kg/m² (range 46–52 kg/m²). Preoperative tests such as thyroid profile, lipid profile, ultrasound abdomen and pelvis and wrist X-ray was done. Patient was put on prophylactic dose of Amoxicillin and Clavulanic acid with induction of anaesthesia. All the patients were operated in a mean time of about 45 ± 9.6 min and no complications during the operation was recorded. After the operation patients were on NSAID's, PPI's and low molecular weight heparins as prophylactic to DVT. Patients were put on IV fluids and soft diet after the surgery and were discharged after stopping IV fluids. They were asked to review at 1 week, 1 month and quarterly for a year. HbA1c and fasting blood glucose level was monitored at 1 month after surgery and once in 3 months for a year. The results showed an improvement in glycaemia profile with reduction in HbA1c and FBS. HbA1c ranged from 7.3 to 11.2, 6.06 to 11.3, 6.1 to 10.9, and 6.1 to 11.1 before surgery, 3 months after surgery, 6 months after surgery, and 1 year after surgery respectively.

	Baseline Mean± SD	3 Months Mean± SD	6 Months Mean± SD	12 Months Mean± SD
FBS	157.94±17	141.59±16.78	130.16±17.67	116.69±21.71
PPBS	248.19±20.3	217.53±30.96	192.72±35.93	166.63±40.55
HbA1c	9.6±1.25	7.12±1.53	6.9±1.65	6.5±1.77
Differences in Glycemic index postoperative				

Out of 32 Patients, 27 showed improvement in the HbA1c and FBS levels without any hypoglycaemic medications and 5 were considered as resistant cases as there was no significant improvement and were put on oral hypoglycaemic drugs. There was >65% weight loss noticed in 29 patients after one year from the surgery without any late complications. Out of which 4 patients had complained about repeated easy fatigability attacks and were resolved around 6 weeks with a course of multivitamins.

	1 Month	3 Months	6 Months	12 Months
EWL (Excess weight loss)	14±1.3 kg	23±1.9 kg	30±2kg	42±4kg
WL % (percentage of weight loss)	21.5 %	35%	46%	65%
Weight loss along the follow-up period				

CAUSES OF CHILDHOOD OBESITY



Lack of physical activity



Unhealthy eating habits



Genetic factors



Hormonal problem



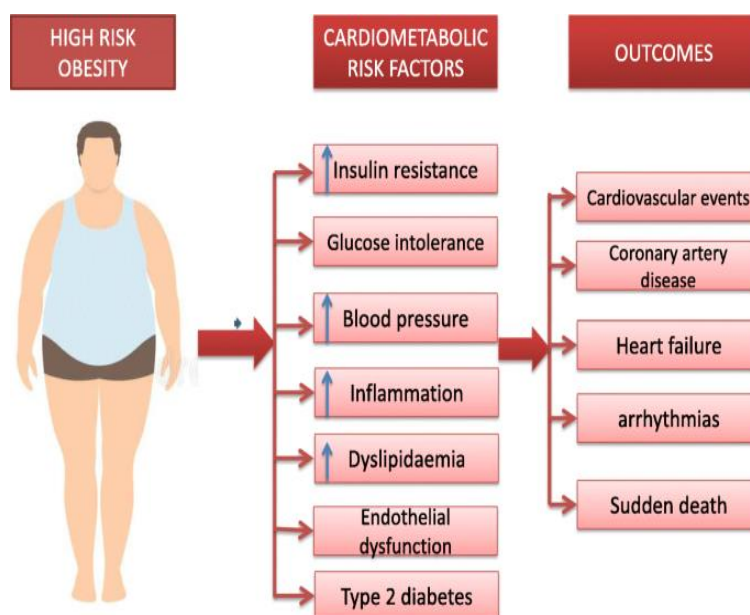
Psychological issues



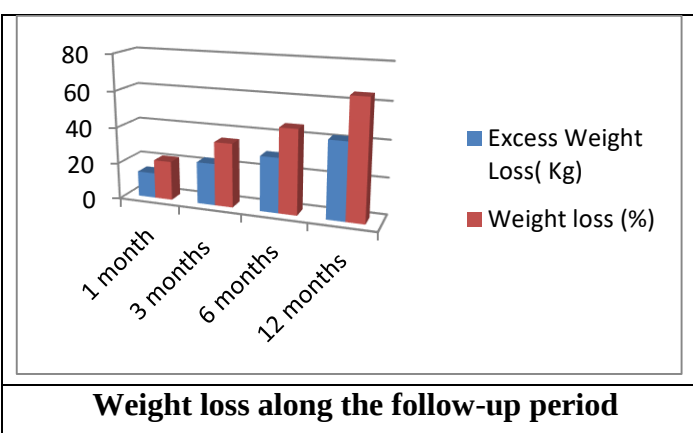
Socioeconomic status

Source: lalpathlabs.com

the past few decades, sedentary lifestyle and changed in food habits are the avoidable factor where as other factors may include use of certain drugs, endocrine syndromes, genetics, familial, socioeconomic and also psychological.¹ Many recent studies reported that there is an increased risk of co-morbidities associated with obesity which, leads to Cardiovascular risk factors including dyslipidemia, type 2 diabetes, hypertension, sleep disorders and also show there is decreased quality of life .⁴ Hence, Screening and treating the obesity

Source: fjps.sringeropen.com

in children is more important because the risk of associated diseases with obesity is much higher in children than that in cases of adult obese patients.¹ The bariatric surgeries play a crucial role in the treatment of obesity in these children and adolescents and has proved to be an effective way in weight loss and prevention of co-morbidities.⁵



LSG is one of the crucial and well trusted procedures for treating obesity in this age group when results are considered. LSG is a primary

Obesity in children has increased over procedure in for treating both obesity and diabetes.¹ The mean weight during 12 months was 42±4kg showing more than 65% of excess weight loss (EWL) and there was significant improvement in HbA1c and FBS levels with a mean decrease of 3.1 mg/dl in the HbA1c after 12 months in 27 patients (84.3%). The patients require close follow up and diet control as weight regain and relapse of diabetes are reported in the literature. Diabetic relapse can be controlled with the lower doses of hypoglycaemic drugs and relapse is mostly seen in case of advanced diabetes who are preoperatively on higher drug doses.¹

In Conclusion, LSG plays a vital role in the weight reduction and improved diabetic control in morbidly obese adolescents as in case of adults. LSG in adolescents may be more beneficial, safe and effective as a metabolic control procedure in adolescents rather than a bariatric restrictive procedure only.

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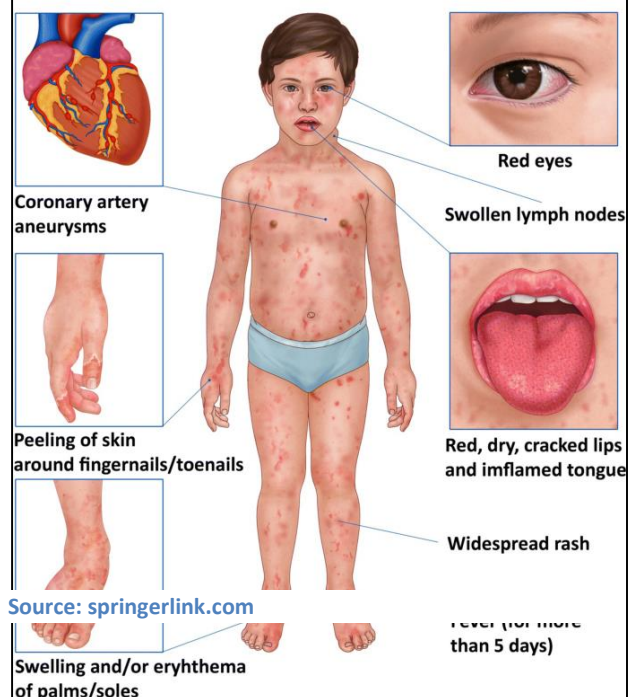
2. Blood Routine Risk Factors for the coronary outcomes in infants younger than 8 months with Kawasaki disease

Kawasaki disease (KD) is a condition in which there is an inflammation in walls of blood vessels. It mainly affects the coronary artery. Generally the age of onset of KD is from 9 to 11 months and the onset age lesser than 6 months is unusual.^{1, 2} Infants younger than 6 months will have higher prevalence of incomplete KD, Coronary artery aneurysms (CAA's) and adverse cardiac events.¹ Kawasaki disease with CAA should be identified early and treated with primary and adjunctive therapies and is very crucial to the improvement of prognosis in the infants with KD.¹ It is known that the peripheral blood cell parameters help in the diagnosing incomplete KD and also is an indicator of risk of CAA. Anyways, the changes in the laboratory values in infants at acute stages of KD were rarely reported.¹

The aims of this study were to characterize dynamic changes in the routine blood values within the first 10 days of illness and coronary artery outcome in infants < 8 months with Kawasaki disease (KD) and to identify risk factors for coronary artery aneurysm (CAA).

Peak percentage neutrophils within 2–5 days of illness and peak platelet count within 8–10 days of illness were notably associated with the risk of CAA.

Diagnostic features of Kawasaki disease



The study subjects were enrolled retrospectively, 78 consecutive infants of age younger than 8 months and 86 infants between the age of 8 months to 7 years who were treated for KD with IVIG therapy within first 10 days. Congenital heart disease and those with incomplete data were excluded from the study.

Clinical data including Age, Illness day, Response to IVIG therapy, Complete blood count (CBC), Plasma concentration of C-reactive protein (CRP) and coronary artery status was collected. C-reactive protein and CBC was collected and evaluated at 2 points i.e. 1st day and 5th day. The highest laboratory values of CRP and CBC at any point during the first 10 days of the fever onset were assessed. If patient had Fever ≥ 5 days and ≥ 4 if the following symptom then it is considered as complete KD, the symptoms include Bilateral conjunctival

injection, polymorphous skin rash, changes in the lips or oral mucosa, changes (oedema/redness/peeling) of the extremities, and unilateral cervical lymphadenopathy.

If the subject had fever ≥ 5 days plus < 4 above mentioned symptoms with or without ECG changes then it is classified as incomplete KD. If the patient had persistent fever for at least 36 hrs after completion of IVIG infusion the he is considered as IVIG resistant and treated with additional IVIG doses and steroids.

Echocardiography was done at the time of initial diagnosis and at 1-2 weeks, 3-4 weeks and 6-8 weeks. Patients are considered as normal coronary arteries (< 2.5 [Z score] standard deviations from the mean, normalised body surface area) or aneurysmal coronary arteries ($Z \geq 2.5$) on the basis of basis of maximal internal dimensions of ECG in first 6 weeks of after fever onset. Z max is the highest Z score on the coronary artery segment at any point of time after six weeks of fever onset. If the Z-score is of ≥ 2.5 for the maximal internal diameters of the proximal left anterior descending artery (LAD) and proximal right coronary artery (RCA) on echocardiograms at 12 months after KD onset then it is defined as Persistent CAA. During the follow-up period CAA regression was defined as a Z-score < 2.5 on echocardiograms. Z-scores was calculated using the Dallaire equations.

Characteristic	< 8 months old (N = 78)	≥ 8 months old CA (N = 86)	P-value
Age (months)	2.4 (1.8;3.7)	3.0 (2.0; 4.9)	0.156
Male sex	19 (51.4%)	27 (65.9%)	0.194
Incomplete KD	15 (40.5%)	14 (34.1%)	0.560
Days of fever before IVIG infusion	5 (4; 6)	5 (4; 6)	0.885
IVIG resistance	7 (18.9%)	2 (4.9%)	0.113
Peak WBC ($10^9/L$)	20.64 (15.09; 27.52)	17.42 (13.40; 19.33)	0.052
Peak percentage neutrophils	0.69 $\pm$ 0.12	0.61 $\pm$ 0.13	0.007
Peak NLR	3.08 (2.37; 5.15)	2.46 (1.46; 3.57)	0.013
NLR after IVIG	0.58 (0.32; 1.41)	0.67 (0.30; 1.24)	0.673
Peak hemoglobin (g/L)	83.94 $\pm$ 10.26	87.71 $\pm$ 9.77	0.104
Peak platelet count ($10^9/L$)	793.0 (576.5; 962.5)	659.0 (562.0;758.5)	0.015
Peak CRP (mg/L)	75.5 (50.0; 135.3)	84.0 (59.5; 104.7)	0.702
Laboratory data on the 1st day			
WBC count ($10^9/L$)	15.48 (10.78;18.66)	12.50 (9.00; 14.88)	0.045
Percentage neutrophils	0.61 $\pm$ 0.13	0.55 $\pm$ 0.17	0.113
NLR	2.11 (1.47;3.05)	2.10 (1.18; 2.75)	0.243
Hemoglobin (g/L)	116.60 $\pm$ 15.54	115.53 $\pm$ 14.21	0.757
Platelet count ($10^9/L$)	366.2 $\pm$ 146.5	366.2 $\pm$ 146.5	0.106
CRP (mg/L)	43.3 (15.3; 68.0)	29.0 (15.1; 61.5)	0.381
Laboratory data on the 5th day			
WBC count ($10^9/L$)	14.44 (9.76; 20.33)	12.69 (8.73; 17.25)	0.070
Percentage neutrophils	0.55 $\pm$ 0.20	0.47 $\pm$ 0.19	0.095
NLR	2.03 (0.62; 3.33)	1.26 (0.66; 2.00)	0.073
Hemoglobin (g/L)	97.78 $\pm$ 17.30	101.78 $\pm$ 16.55	0.303

Platelet count (10 ⁹ /L)	452.7 ± 200.6	398.3 ±143.8	0.172
CRP (mg/L)	45.85 (33. 5; 96.5)	59.0 (36.8; 98.0)	0.614
Characteristics of infants <8months with and without CAA during the acute phase of KD			

At the time of diagnosis of acute KD the median age of these subjects was 0.85 years (IQR: 0.22–2.33 years), and 96 (58.5%) were boys. Before the first IVIG treatment the median duration of fever was 5 days (IQR: 5–7 days). 150 (91.5%) received a single course of IVIG treatment, 14 (8.5%) were IVIG resistant and received IVIG retreatment, and 9 patients received steroids. a larger proportion of infants < 8 months old had CAA. Twenty-five subjects (15.2%) developed CAA in the bilateral coronary arteries, 16 (9.8%) developed CAA in the left coronary artery, and 9 (5.5%) developed CAA in the RCA. The locations of CAA included the LAD in 28 (17.1%), the left circumflex in 10 (6.1%), the proximal RCA in 34 (20.7%), the middle RCA in 14 (8.5%), and the distal RCA in 8 (4.9%). Patients with CAA were younger and had a higher platelet count on the 1st day platelet count on the 5th Day, peak platelet count, a lower haemoglobin on the 5th day and peak haemoglobin as compared to patients without CAA. The data of this study showed that 37.2% of infants younger than 8 months had incomplete KD, 47.4% of these infants had CAA, and 9.0% had persistent CAA at 1 year after KD onset.

The current study reported that 37.2 % of infants younger than 8 months had incomplete KD and 47% of these children have CAA of which 9% had persistent CAA after 1 year of onset of KD. KD is a form of systemic vasculitis which may lead to the major changes in the peripheral blood vessels resulting in increased WBC cells, platelets, neutrophils and anaemia over time.^{1, 2} The CAA usually occurs after 8 days of onset hence, the study concentrated on dynamic nature of peripheral cells over 10 days and found that WBC, percentage neutrophils, platelet count and haemoglobin peaked on different days after onset of KD, and further found out what percentage of neutrophils causes the risk of CAA in the infants aged <8months and haemoglobin on the 5th day was closely related to persistent CAA.³ The results showed the median peaks of WBC and neutrophil percentage was at 3-5 days of onset of illness. The peak parentage of neutrophils is considered as an independent predictor of CAA. The platelets have peaked at 8-10 days and have independent predictive value for KD. The lower the haemoglobin levels in the acute phases of KD, the more will be the coronary artery damage. Hence the haemoglobin levels on the 5th day can be used to stratify risk in infants with KD.¹

In conclusion, Incomplete KD and CAA were more frequent in infants. Peak percentage neutrophils within 2–5 days of illness and peak platelet count within 8–10 days of illness were notably associated with the risk of CAA. Haemoglobin within 4–6 days was linked with persistent CAA and may be used as a marker of persistent CAA due to KD in infants. Within 2–5 days of illness for infants with high peak percentage neutrophils, the use of steroids,

cyclosporine, or infliximab in combination with initial IVIG should be considered in the early stages of KD.

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3. Effects of Surgical Treatment for Allergic Rhinitis on Sleep and Mental Health in Adolescents

Allergic rhinitis is a chronic medical condition occurs with the symptoms of nasal obstruction, repetitive sneezing, itching and watery nasal discharge, it is usually seen in age groups less than 20 years.^{1, 2} About 40% of the patients starts to show the symptoms of AR at the age of 6 years.¹ AR is a major health condition that shows a significant effect on quality of life in adolescents during both wakefulness and sleep.³ The symptoms associated with AR in Adolescents are more serious and different in children and adults, having serious effect on their physical and mental conditions.¹ AR is associated with the symptoms of sleep disturbances and most relevant in adolescents and have negative impact on social activities and academics. ^{1, 3} surgical treatment is considered as an option in the treatment of chronic AR and the surgeries includes the efficiency of inferior turbinate (IT) surgeries, including sub mucosal resection of IT bones.¹ The impact of these surgeries on sleep and mental disorders is not fully understood and this study aims to evaluate the efficacy of surgical treatment for AR in Management of sleep and mental disorders

The surgical treatment in AR is efficacious and recommended in Adolescents suffering from AR associated with sleep and/or mental disorders.



Source :melbentgroup.com.

The SNOT-22 has 22 individual questions developed for use in Chronic rhino sinusitis. It contains questions related to AR, Sleep and mental health. Demographic data, Pre-operative and post operative SNOT scores, surgical procedure data were recorded, compared and

changes in the scores after the surgery were validated based on the minimal clinically important difference (MCID). The subjects with a preoperative score of 3 (moderate problem) or more in both sleep and mental health-associated questions were extracted. In these subjects, postoperative AR, sleep, and mental scores were compared with the preoperative scores. We then calculated the changes in AR, sleep, and mental scores (preoperative score—postoperative score) and assessed the correlations between changes in AR,

Score	Severity
1	very mild problem
2	mild or slight problem
3	moderate problem
4	severe problem
5	problem as bad as it can be

Score and Severity table for SNOT-22

sleep, and mental scores. To evaluate the surgical efficiency, Pre operative and post operative scores, AR scores were compared and also validated the changes in the SNOT scores following the surgical treatment based on MCID. The subjects were divided in to two groups based on the surgical procedures performed, with or without septoplasty and compared demographic characteristics, preoperative scores, and changes in scores after treatment.

The correlation was tested using the Spearman rank correlation. Comparisons between the preoperative and postoperative scores were performed using the Wilcoxon rank test. Fisher's exact test for nominal variables or Mann–Whitney U-test for continuous variables was used for comparisons between two groups. Graph Pad Prism 7 (Graph Pad Software, San Diego, CA, USA) were used to perform statistical analysis. The data are presented in the mean $\pm$ one standard deviation

A total of 81 participants were in the study, 17 females and 64 males. The mean age was 14.1 $\pm$ 2.0 years. Posterior nasal neurectomy was performed in 79/81 patients, septoplasty was performed in 42/81 patients due to severe deviation in nasal septum. Preoperative SNOT-22, AR, sleep, and mental scores were 34.9 $\pm$ 18.4, 11.8 $\pm$ 5.0, 5.4 $\pm$ 4.9 and 8.7 $\pm$ 7.3 respectively. There was a statistically significant correlation among preoperative AR and sleep scores, preoperative AR and mental scores, and preoperative sleep and mental scores. Postoperative SNOT-22 and AR scores were 14.5 $\pm$ 15.9 and 5.5 $\pm$ 5.0, respectively, and were remarkably improved in comparison with preoperative scores. The proportion of subjects showing MCID (improvement of 12 or larger points) for SNOT-22 was 72.8% (59/81 patients). There was no significant difference in age sex, age, or surgical procedure in subjects with MCID and those without MCID

34 subjects were identified with sleep and mental disorders and Septoplasty was done in 16 patients (47.1%). The preoperative and postoperative SNOT-22 were 48.7 $\pm$ 17.7 and 17.8 $\pm$ 20.5, respectively and the difference was statistically significant. The post operative sleep, AR and mental scores were significantly reduced in comparison to preoperative scores and Correlations between changes in AR scores and mental scores and between those in sleep scores and mental scores were statistically significant.

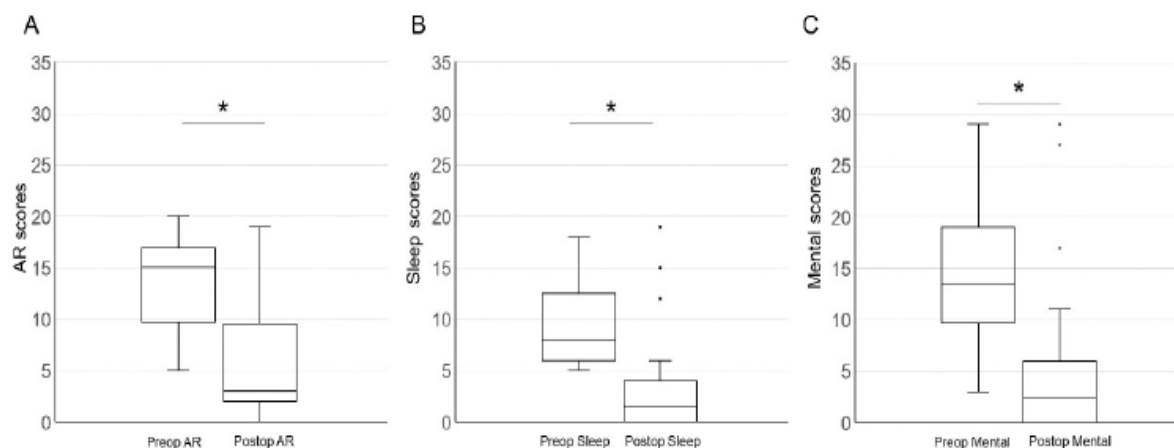
.	MCID + (<i>n</i> = 59)	MCID – (<i>n</i> = 22)	Statistics
Sex (woman:man)	10:49	7:15	<i>p</i> = 0.2180
Age (years)	13.9 ± 1.9	14.9 ± 2.1	<i>p</i> = 0.0587
Surgical procedure (with: without septoplasty)	30:29	12:10	<i>p</i> = 0.8071
Preoperative SNOT-22	38.8 ± 15.7	24.4 ± 21.7	* <i>p</i> < 0.0001
Preoperative AR score	12.7 ± 4.4	9.5 ± 5.8	* <i>p</i> = 0.0361
Preoperative Sleep score	6.3 ± 4.7	3.1 ± 4.7	* <i>p</i> = 0.0005
Preoperative Mental score	10.2 ± 6.7	4.5 ± 7.4	* <i>p</i> < 0.0001

Demographic characteristics, surgical procedures, and preoperative scores in subjects with or without MCID. Asterisks (*) indicate statistical significance by the Mann–Whitney U test.

The subjects who underwent septoplasty and those who didn't were divided in to two separate groups and found no significant demographic changes in preoperative scores. For the changes in SNOT-22, AR, sleep, or mental scores after treatment, no significant differences were found among subjects with septoplasty and those without septoplasty; however trend shows larger changes in the AR scores in subjects without septoplasty

	Changes in SNOT-22	Changes in AR Scores	Changes in Sleep Scores	Changes in Mental Scores
with septoplasty	28.6 ± 18.7	6.3 ± 5.4	6.2 ± 4.2	10.2 ± 6.2
without septoplasty	33.4 ± 14.8	10.0 ± 5.0	6.6 ± 3.7	9.6 ± 6.2
Statistics	<i>p</i> = 0.4168	<i>p</i> = 0.0530	<i>p</i> = 0.8703	<i>p</i> = 0.7136

Changes in SNOT-22, AR, sleep, and mental scores in subjects showing sleep and mental disorders with or without septoplasty.



Box plots of preoperative and postoperative AR (A), sleep (B), and mental scores (C) in patients with both sleep and mental disorders. Differences between the preoperative and postoperative scores for each parameter were statistically significant using the Wilcoxon rank test (*)

Adolescents differ from children and adults in terms of severity of the AR symptoms and their effect on the quality of life.^{1,3} surgical treatments serve as one of the good option in the treatment of AR refractory to other treatments in improving the QOL in Adolescents.¹ IT is the main target in treating the allergic effects. Hence reduction of IT is one of the main surgical options in treating AR.¹ Partial resection of the IT bones and Posterior nasal neurectomy to decreases hyper secretion and hypersensitivity were done in the study. This has been the standard surgical treatment refractory to medical treatment for AR in the study. Nasal septal deviation is also a cause of allergic disease secondary to IT. hence septoplasty is also considered in some selected cases along with IT surgery. However, septoplasty didn't show any significant results of the MCID for SNOT-22 post operatively in the subjects. The study aimed at evaluating the effects of surgical treatment for AR on sleep and mental disorders in adolescents which helps in determining the surgical indications for AR in Adolescents. The present results in the study showed a remarkable correlation in the between preoperative AR, sleep, and mental scores in adolescents with AR refractory to medical management implying that severe AR symptoms in Adolescents may lead to sleep and mental disorders, similar to the earlier studies.⁴ there was a significant decrease in the SNOT-22 and AR scores after the surgical treatment and there was an improvement in the the MCID for SNOT- in 72.8% of subjects with 22 chronic rhinosinusitis. This indicates that the surgical modality used in the study is efficacious.¹ Subjects with MCID exhibited higher preoperative SNOT-22, AR, sleep, and mental scores than those without MCID, indicating that the impact of surgical treatment was larger in patients with severe symptoms than those with slight or moderate symptoms. To evaluate the effects of the surgical treatments 34(42%) patients were extracted who had moderate sleep and mental disorders refractory to medical treatments,

indicating higher incidence of the sleep and mental problems in adolescents. Surgical treatment significantly improved AR, sleep, and mental scores in these subjects. This improvement in these shows a significant and high correlation with mental scores. AR with Sleep and/or Mental disorders constitute to a good indication for Surgical treatment in Adolescents.

The study retrospectively reviewed the effects of the effects of surgical treatment on sleep and mental disorders in adolescents with AR symptoms refractory to medical management, and showed that surgical treatment is efficacious not only in terms of AR related symptoms but also for sleep and mental disorders correlated to AR in Adolescents. Surgical intervention is recommended as a treatment in Adolescents taking in consideration of its impact on AR symptoms and quality of life in adolescents.

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4. HIV-child (with disseminated *Talaromyces Marneffe* (*Penicillium marneffe*) infection: a rare severe case report

Talaromyces marneffe formerly known as *Penicillium marneffe* is a dimorphic fungi geographically found in southern oceans, mainly in southern China. This fungus grows in a humid climate and closely connected to bamboo rats.¹ HIV patients and Immune-compromised patients can be easily infected by this fungus.¹ It is the third most common opportunistic infection in South east Asia.² In India, it is found only in the residents of northeastern states or those with the history of travel to Manipur, Meghalaya and Mizoram.³ *T.marneffe* can spread rapidly and leads to systemic disseminated infection. About 50,000 new infections in HIV-infected patients and 5,000 deaths every year were caused by *T.marneffe*.³ If left untreated can be life threatening.^{1, 3} It has the global mortality rate of about 27.7%. transmission of AIDS from mother to children is unusual and is presented by acute onset and short incubation period.¹ The present case study is a severe case of a 6 year old Chinese girl with AIDS Who was infected with *T.marneffe* presented with clinical and imaging findings.

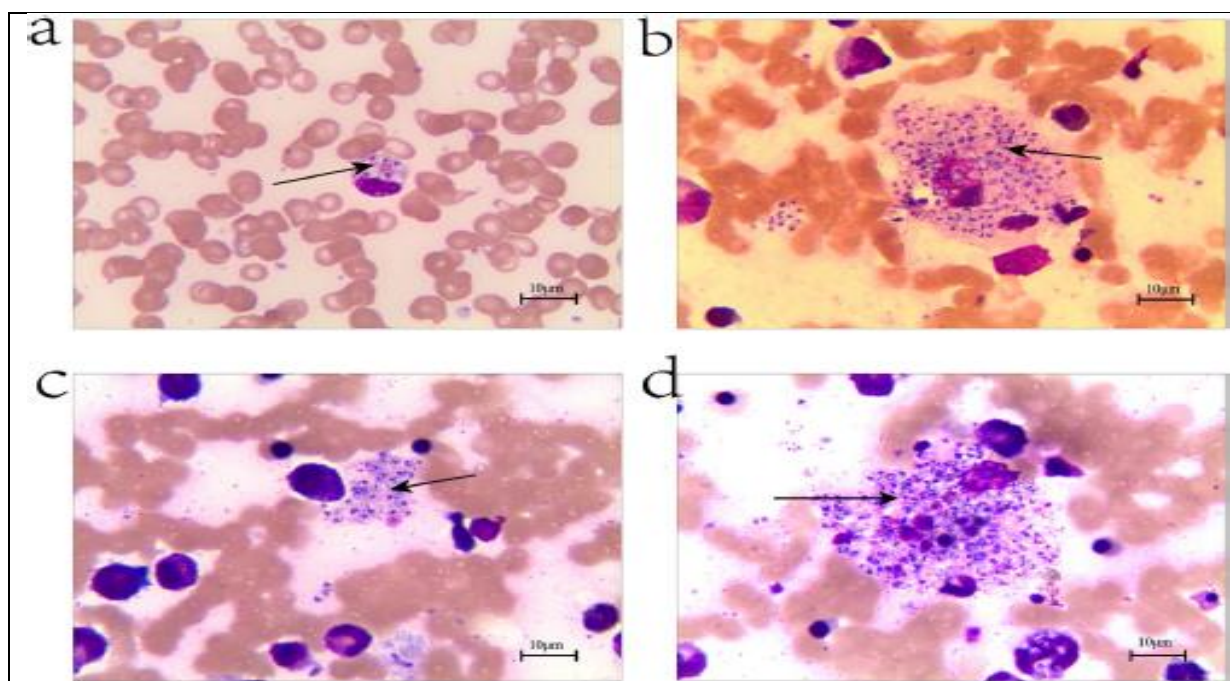
The children with AIDS and symptoms such as fever, abdominal pain, lymphadenopathy and signs penicilliosis should be suspected of *T.marneffe*

A 6 year and 7 months old girl presented with AIDS that is caused by untreated HIV. She complained of fever with chills and paroxysmal abdominal pain under the xiphoid process. In spite of treatment the patient's condition did not improve, fever and abdominal pain resided. On day 5 the patient was shifted to ICU, patient and her attendants were again asked for the detailed medical history. The child did not have any contact with specific plants, rotten sugarcane or bamboo rats and other animals in recent times. She was examined physically and found ecchymosis in left lower limb. 7 to 8 mm clustered lymph nodes could be palpable under the jaw, neck, armpit and groin with a firm texture, tender and moderate activity was seen. Respiratory sounds of left lung were lower than that of right lung abdominal distension and tenderness, abdominal circumference of 51.8 cm and abdominal muscle tension was noticed. Palpation revealed that the liver was about 7.0 cm below the ribs and 8.5 cm below the xiphoid process. The spleen was 6 cm below the coastal area. Tenderness was seen in both the limbs and depressed oedema in left lower limb. The peak temperature was 38.5°C which returned to normal after administering antipyretics and physical cooling treatment. She was also put on Cefepime antibiotic treatment and vitamin K1 treatment.

The laboratory examination results showed that the blood cells and Immune cells were decreased. Cytokines were generally increased. Chest and whole abdomen CT reports were: 1) multiple enlarged lymph nodes in the abdomen, pelvic cavity, bilateral inguinal region, and

axillary region, partially fused into a piece. 2) diffuse peritonitis, hepatomegaly, splenomegaly, unclear pancreatic head, cholecystitis with effusion in the gallbladder fossa 3) lower lobe infection of both lungs 4) bilateral pleural, abdominal and pelvic effusion .

After observing all the above examinations the patient was continued with the anti-infective treatment of Cefoperazone salbactam and creatinine phosphate was given to nourish the myocardium, glutathione was reduced to protect the liver, cholestasis was treated through oral ursodeoxycholic acid , albumin was infused to treat hypoproteinemia. 200ml infusion of fresh frozen plasma and platelets was administered to improve coagulation function.8 bone



Microscopic appearances of patient show: T.marneffei was found in peripheral blood smear (a, b) and bone marrow smear (c, d)

marrow smears and 10 ml bone marrow was collected for further examination purposes.

White blood cells	$3.16 \times 10^9 / L$
Red blood cells	$3.07 \times 10^{12} / L$
Haemoglobin	97g/L
Platelet count	$22.00 \times 10^9 / L$
CD4/CD8	0.07 %

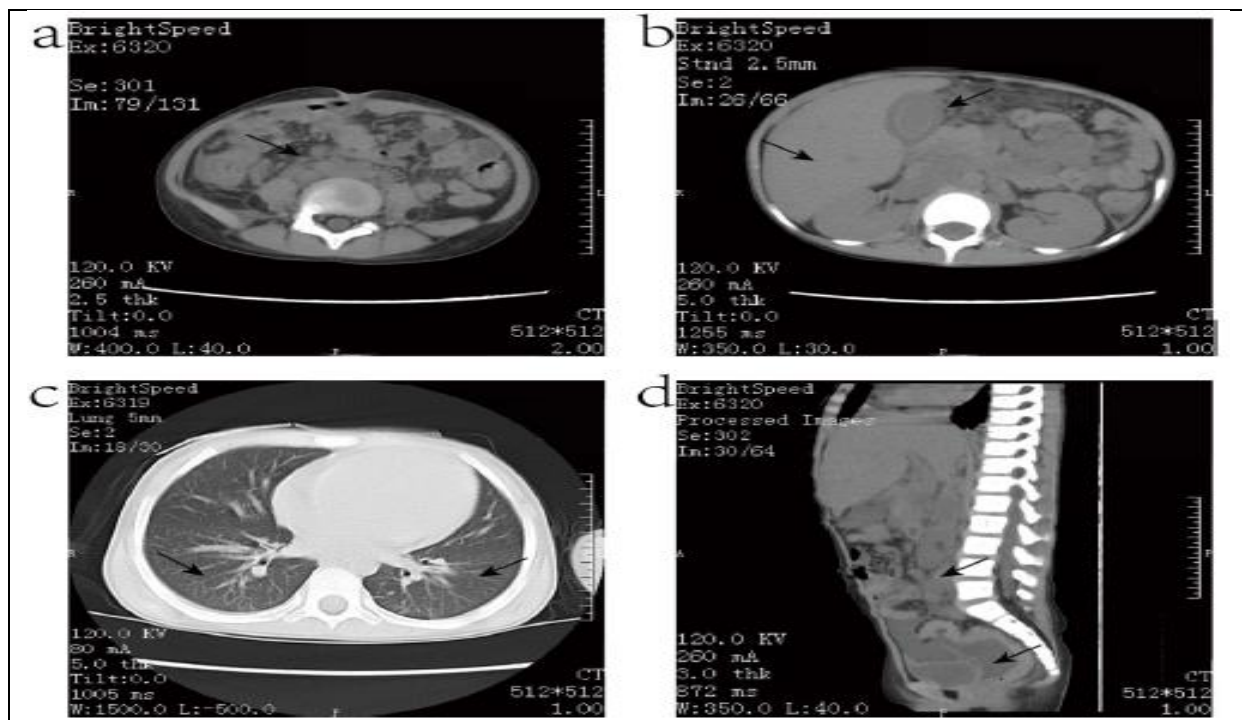
Clinical laboratory reports confirmed HIV positive (ELISA) and results were confirmed by the centres of disease control and prevention (Western blotting) on the same day. Peripheral smear and bone marrow smear confirmed the presence of *T.marneffe* by microscope and cell graphic analysis system.

After detailed inquiry of medical history it was found that mother of the child was diagnosed with HIV at the time of birth, she didn't take any retroviral therapy during the pregnancy and child was not diagnosed and had left untreated after the birth. In spite of above treatment patients abdominal pain and fever didn't go down and she had 7-8 episodes of bloody stools. *T. marneffe* was also detected in the blood culture. The patient was discharged the same day by taking treated withdrawal consent as child's family refused the treatment. During the follow up its known that patient died 3 days after she was discharged.

CD3+	33.8%
CD3+/CD4	1.97%
CD4+	31.06 cells/ μ L
IL-6	198.89pg/mL
IL-10	58.64pg/mL
IFN- γ	419.23pg/mL
AST	358 U/L
γ -GGT	110.00U/L
LDH	1831.00U/L
TBA	89.80 μ mol/L
GLU	2.49mmol/L
PT	18.40s
INR	1.59
APTT	51.50s
FBG	0.47 g/L
TT	26.80 s
FDP	67.09 μ g/mL
D-Dimer	36.52mg/L
Laboratory Examination Results	

Pencilliosis is a severe fungal infection caused by *T.marneffe* and is the second most harmful and rapidly spreading mycosis seen in the AIDS patients of southern china and Southeast Asia, and it is the third most invasive disease among AIDS patients in south Asian countries after tuberculosis and cryptococcosis.^{1, 2} *T. marneffe* can locally cause mycosis of skin, it can affect bone marrow, lung, spleen, liver, lymph nodes and cause disseminated infection.^{1, 3} Route of transmission is unknown, some studies showed that exposure to soil of epidemic foci in rainy season, bamboo rat faeces are the main sources of infection. *T.marneffe* often cause infection in immune-compromised patients and it is very rare in children with AIDS and it can be easily misdiagnosed.¹ CD4+ T cells in children get damaged quickly because of acute onset and short incubation period, which makes immune system of children more prone to opportunistic infections. It attacks the reticulo-endothelial system of mononuclear macrophages.

In *T.marneffe* infected patients, the macrophages phagocytise the infected fungi and reproduce in larger numbers. These macrophages containing fungi can cause systemic disseminated infection through lymphatic and blood circulation and infect lymph nodes, liver, spleen, bone marrow, lungs and skin.¹ The primary signs and symptoms of these patients include fever, anaemia, respiratory symptoms, weight loss, hepato-splenomegaly, systemic lymphadenopathy, and skin damage.³ The chest imaging shows the clinical features such as diffuse nodules, ground-glass opacity, pleural effusion, multiple mediastinal lymph node enlargements, and similar, which are easily miss-interpreted as pulmonary tuberculosis, pulmonary cryptococcosis, aspergillosis, and other chronic infectious diseases and malignant pulmonary tumors. Abdominal imaging shows the findings are complex and variable. The patient had variety of manifestations like including abdominal and retroperitoneal lymph node enlargement, hepato-splenomegaly, and ascites.^{1,3} Childhood AIDS with *T.marneffe* infection increases the mortality, bacterial and blood culture is a gold standard way in diagnosing *T.marneffe* infection and bone marrow smear tests may be used to detect the infection in bone marrow but it is an invasive procedure, it is more difficult to perform



The chest CT manifestations of patient show: 1) multiple enlarged lymph nodes in the abdomen, pelvic cavity, bilateral inguinal region and axillary region, partially fused into a piece (a); 2) diffuse peritonitis, hepatomegaly, splenomegaly, unclear pancreatic head, cholecystitis with effusion in the gallbladder fossa (b); 3) lower lobe infection of both lungs (c); 4) bilateral pleural, abdominal and pelvic effusion (d)

puncture in the patients who are critical.¹ The microscopic examination of the peripheral blood smear is the most cheap and fastest test method, which is used as a reference for bone

marrow smear test results. But the detection rate of the peripheral blood smear is lower. Hence the combination of a peripheral blood smear, bone marrow smear, and bacterial blood culture is the most precise and effective in detection of *T.marneffei*.¹

In Conclusion, the children with AIDS and symptoms such as fever, abdominal pain, and lymphadenopathy and signs penicilliosis should be suspected of *T.marneffei* infection especially when the anti-inflammatory treatment is ineffective. In adjunct, peripheral blood smear, bone marrow smear, blood bacteria culture should be done, which may help in detecting *T.marneffei*. Beyond this our patient showed unusual hemogram with coagulation dysfunction which tells that doctors need to be aware of the possibility of life threatening hemorrhagic diseases and prevent them. Clinicians at the first step should diagnose the disease through laboratory investigations and imaging reports, which help in reducing fatalities, prolong the lifespan and improve the quality of life of children.

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