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MANAGEMENT OF PLEURAL EFFUSION IN AYURVEDA -A CASE STUDY

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ABSTRACT

Pleural effusion is the accumulation of fluid in between the parietal and visceral pleura, called the pleural cavity. It can occur by itself or can be the result of surrounding parenchymal disease like infection, malignancy, or inflammatory conditions. Pleural effusion is one of the major causes of pulmonary mortality and morbidity.

After assessing the pathophysiology and clinical presentation of pleural effusion it can be considered as urasthoya and can be treated with shodhana and katu ruksha ushna kapaghna kledahara and shothahara upachara

In the present case, a 49-year-old female was diagnosed with pleural effusion (kapahaja kasa) and was treated with therapies like *Udwarthana, Bashpa sweda, Agnichikitsalepa, Dhanyamla and Dashamoola parisheka, Churnapindasweda pranadhara steam inhalation, and virechana* along with oral medications, yoga and pranayama.

The treatment gave significant improvement in the condition of the patient.

Key Words: Pleural effusion, Urasthoya

INTRODUCTION

Pleural effusion

Pleural effusion is the accumulation of fluid in between the parietal and visceral pleura, called the pleural cavity. It can occur by itself or can be the result of surrounding parenchymal disease like infection, malignancy, or inflammatory conditions. Pleural effusion is one of the major causes of pulmonary mortality and morbidity. [1,2,3]

Globally 0.3% prevalence was observed equally in both genders [4]

Normally 0.1- 0.2 ml / kg of fluid is present in pleural space to facilitate pleural movement. When the balance between the production and reabsorption of this fluid deteriorates, it becomes pleural effusion.

Common causes of transudates include conditions that alter the hydrostatic or oncotic pressures in the pleural space like congestive left heart failure, nephrotic syndrome, liver cirrhosis, hypoalbuminemia leading to malnutrition and the initiation of peritoneal dialysis.

Common causes of exudates include pulmonary infections like pneumonia or tuberculosis, malignancy, inflammatory disorders like pancreatitis, lupus, rheumatoid arthritis, post-cardiac injury syndrome, chylothorax (due to lymphatic obstruction), hemothorax (blood in pleural space) and benign asbestos pleural effusion.

Some of the less common causes of pleural effusion are pulmonary embolism which can be exudate or transudate, drug-induced (e.g., methotrexate, amiodarone, phenytoin, dasatinib, usually exudate), post-radiotherapy (exudate), esophageal rupture (exudate) and ovarian hyperstimulation syndrome (exudate). Breathlessness, chest pain and nonproductive cough are the most common symptoms associated with pleural Effusion.[5]

In ayurveda, Pleural effusion can be correlated to the concepts like urasthoya, parshwashoola, etc due to their similarities in its nidana, samprapthi and its lakshana[6,7,8]

Urasthoya as a separate disease is not mentioned in bruhathrayee, but similar concept of Parshwashula in the form of complication of Gulma and as a symptom of Rajaykshma [7,8].

Madhavakara explained urasthoya as separate entity in Parisistabagha of Madhavanidana and chikitsa is mentioned in Bhasihajyartanavali Urasthoyadhikara [6,9]

Urastoya can be defined as accumulation of Drava Abdhatu by in shlesmdhara kala (Urahdhara or Parshwadhara Kala) of urahpradesh (pleural cavity)

Swasa Kruchrata (Difficulty in breathing), Kasa (cough), Angagada Shotha (oedema), Neelatwa of Asya and Adhara (bluish discolouration of face and lips), Mutra Alpata (reduced urine output), Drutha Gati Nadi (increased pulse rate), Shayanasya Na Soukhyam (Difficulty to breathing in supine position), AsinevamSukhi (Feeling comfort in sitting posture) are the lakshana of Urasthoya[6]

According to Bhaishajya Ratanavali Urasthoyachikitsa prakarana, kaphaghna oushadha, mutrala dravyas can be used. Yogas mentioned in Mutrakrchra, hrdroga, swasa, kasa and shotha chikitsa can be given to the patient of urasthoya. Cold water, cold breeze, execessive exertion, exercises, daytime sleep, kopa, soka and abhishyandakara dravyas are considered to be apathya[9].

Current case study is concerned with a case of pleural effusion and its management with ayurvedic protocol

CASE STUDY

A K/C/O DM and HTN 49 year old female patient reported to the opd of Kayachikitsa SDMIAH, Bangalore with symptoms of difficulty in breathing (swasakrchratha), productive cough (kasa with kaphashteevana) since 4 months

CASE HISTORY: -

The patient complained of difficulty in breathing (swasakrchratha), productive cough (kasa with kaphashteevana) since the last 4 months. She took allopathic medications but the condition didn't subside. As the symptoms persisted, she was admitted. Upon investigations (X ray PA view) it was found that blunting of both CP angles suggestive of pleural effusion. She was advised with thoracocentesis, but the patient refused to undergo the invasive therapy. The patient visited the OPD of Kayachikitsa SDMIAH, Bangalore for the same and

treated with internal medications. Patient felt mild relief and she was advised with IP admission.

CLINICAL FINDINGS

GENERAL EXAMINATION

Pulse: 66 bpm

Weight: 56 kg

Bp – 100/70 mm hg

SYSTEMIC EXAMINATION

CVS – S1 S2 heard, No added sounds.

CNS – patient is well oriented to time, place and person

higher mental functions, sensory system, cranial nerves – no abnormality detected

P/A – on inspection: no scars

on palpation: soft, non-tender in all quadrants

RESPIRATORY SYSTEM

INSPECTION:

Shape of chest – elliptical (Bilaterally symmetrical)

No scars,

Chest expansion – Bilaterally symmetrical

RATE – 14cycles/MIN

PALPATION:

Trachea is in midline

No tenderness in chest region

Chest expansion – bilaterally symmetrical

Vocal fremitus - bilateral equal intensity mildly decreased

PERCUSSION:

dull percussion noted over bilateral lower lobes

AUSCULTATION:

Decreased Vesicular and bronchial breath sounds

Mild pleural rub heard over lower lobes bilaterally ++

Vocal resonance – bilaterally symmetrical mildly decreased.

INVESTIGATIONS: -

XRAY PA VIEW 09/06/2023

Radiopacity seen tracking along the both lateral chest wall causing blunting of both CP angle

Suggest pleural effusion

DASHAVIDHA PARIKSHA	
Prakriti :	Kapha vatala
Vikruthi	Kapha pradhana thridosha
Sara	Madyama
Samhanana	Madyama
Pramana	Madyama
Satwa	Madyama
Satmya	Sarvarasa
Aharasakthi	Avara
Vyayamasakthi	Madyama
Vaya	Madyama

ASHTAVIDHA PARIKSHA	
Nadi	Kaphavataja
Mala	Vikrutha
Muthra	Samyak
Shabda	Prakrutha
Jihwa	Eeshath liptha
Sparsha	Anushnasheetha
Drik	Prakritha
Akrithi	Madhyama

Nidana:-

Sanniprakrista Hetu: - Excessive Shitajala Sevana, Pragvathaseva

Viprakushta Hetu: - Virudhahara, Dadhi, Ratri Jagarana, Diva Swapana,

Roopa: Shwasa Kashtata, Kasapravriti Pravriddha At Pratahkale, Aruchi, Parswa - Prishthashoola With Kalaprakarsha : 4 Months; **Poorvarupa :** Avyaktha

Samprapthi: Viprakruhsta and nSannikrushta Nidana →→ Agnimandya →Kaphapradhana Thridosha Dushti → Rasa Dushti→Sthanasamsharaya at Uras/ Phuphusa →Aggravation of Kledabhava →Urasthoya

Upashaya: Ushnajala; **Anupashaya :** Ratri , Pratah Kala , Seethajalasevana , Sheethamarutha

SAMPRAPTI GHATAKA

1. Dosha : Shleshma Pradhana Tridosha

2. Dushya : Rasadhatu

3. Adhisthana : Phuphphusa, Phuphphusavarana Kala, Uras

4. Udbhavasthana : Amashaya

5. Srotasa :Pranavaha Srotasa, Rasava Srotasa

6. Srotodushti Prakara : Atipravriti, Sanga, Vimargagmana

7. Agni : Manda

8. Vyadhi Swabhava : Chirkari

9. Sadhya : KricchaSadhya.

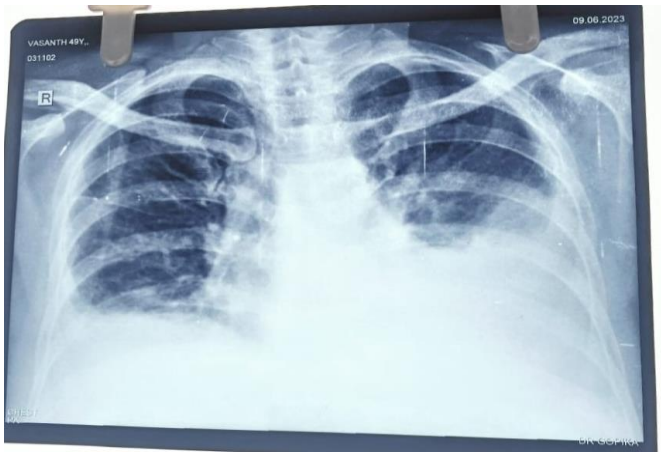
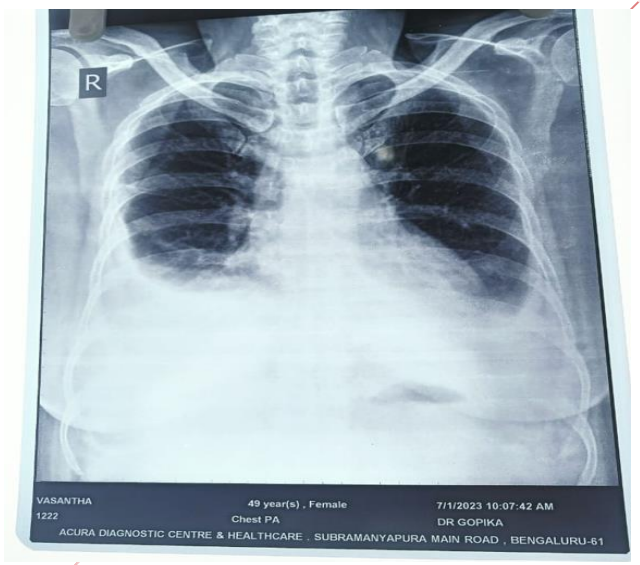
10. Sama/Nirama : Sama

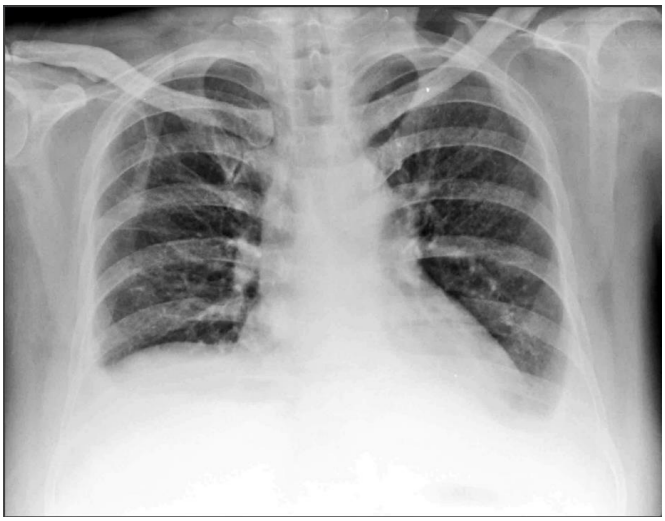
THERAPEUTIC INTERVENTION

DATE	CHIKITSA	INTERNAL MEDICINE
5/06/2023 TO 10/06/2023 FOR 6 DAYS	1. SARVANGA UDWARTHANA 2. BASHPA SWEDA 3. SARVANGA AGNICHIKITSA LEPA 4. SARVANGA DASHAMOOLA AND DHANYAMALADHARA 5. YOGA AND PRANAYAMA	1. TAB CHIKTRAKADI VATI 1-1-1 B/F 2. AGNITUNDI VATI 1-1-1 B/F 3. HINGUVACHADI TABLET 1-1-1 A/F 4. PACHANAMRUTA KASHAYA 20ML TID B/F

11/06/2023 FOR 1 DAY	1. SARVANGA ABHYANGA WITH BRUHAT SAINDHAVA TAILA AND BASHPASWEDA 2. VIRECHANA WITH TRVRT LEHYA 50 GM 3. FOLLOWED BY USHANJALA ANUPANA, VEGAS -10	-
12/06/2023	ADVISED DISCHARGE REVIEW AFTER 15 DAYS RESTRICTED WATER INTAKE (LESS THAN 1.5L /DAY) SELF MRUDU CHURNA PINDA SWEDA (WITH ROCK SALT AND KOLAKULATTADI CHURNA)	INTERNAL MEDICATIONS 1. TAB. MAHALAKSHMIVILASA RASA 1-0-1 A/F 2. TAB. GOKSHURADI GUGGULU 2-0-2 A/F 3. TAB. LAGHU SOOTA VATI 1-0-1 B/F 4. VASAKAVALEHYA 2TSP-0-2TSP A/F (FOLLOWED BY 1/4TH GLASS HOT WATER) 5. SITOPALADI CHURNA (20G) + HARITAKI CHURNA (20GM) +AVIPATTIKARA CHURNA (20GM) + SHRINGYADI CHURNA (30G) +ABHRAKA CHURNA (5GM) + GODANTHI BHASMA (20GM) +GUDUCHI SATVA (30GM) = 1/2TSP QID WITH WARM WATER
	-	Continued internal medications for 15 days
3/07/2023 FOR 7 DAYS	ADVISED ADMISSION 1. HALF BODY CHURNA PINDA SWEDA 2. HALF BODY DHARA 3. STEAM INHALATION WITH PRANADHARA DROPS	1. SYP.PULMOTONE 3TSP-0-3TSP A/F 2. GOKSHURADI GUGGULU 2-2-2 AF

OBSERVATION AND RESULTS

DATE		INVESTIGATION REPORTS
09/06/2023		XRAY PA VIEW Radiopacity seen tracking along the both lateral chest wall causing blunting of both CP angle Suggest pleural effusion
1/07/23		XRAY PA VIEW Both cp angles obliterated with homogenous opacity in lower zones suggestive of bilateral pleural effusion FBS – 94 MG/DL PPBS – 167 MG/DL PPUS – TRACE URINE EXAMINATION -WNL

9/09/23		XRAY PA VIEW Rotation +. Mild blunting of both CP angles s/p/o minimal bilateral pleural effusion / pleural thickening, Prominent broncho-vascular markings bilaterally

Sl .no	Symptoms	Before treatment	After treatment
1	Swasakrchrtha (difficulty in breathing	2	1
2	Productive cough (kasa with kaphashtevana	2	0
3	Aruchi (decreased appetite)	3	1
4	Klama (lassitude)	3	1
5	Vibandha (constipation)	1	0
6	Shoola (pain) over upper back and flanks	2	0
*symptoms graded from 0-4 , 0 being the minimum severity and 4 being the maximum severity			

DISCUSSION

The patient presented with *lakshana* such as *Swasakrchrtha* (difficulty in breathing), Productive cough (*kasa* with *kaphashtevana*). *Aruchi* (decreased appetite), *Klama* (lassitude), *Vibandha* (constipation) and *parswa prushta Shoola* (pain) over upper back and

flanks.On examination mild pleural rub, decreased resonance and dull percussion was noted which implied fluid collection in the lung fields. On Xray radiopacity was seen tracking along the both lateral chest wall causing blunting of both CP angle suggestive of bilateral pleural effusion. After taking the aetiology, pathogenesis and clinical features, this can be correlated as a case of *urasthoya.*

In the present case,after assessing the lakshana the dosha involved can be inferred as kapha pradhana thridosha and dushya as rasadhathu forming dosha dushya samoorchana in the pranavaha srotas taking uras as the adhishtana. Though all tridoshas have importance in the pathogenesis of Pleural effusion, Kapha is highly responsible for obstruction of microvessels in lung tissue and rasadushti leading to aggravation of kleda which cumulatively lead to progressive pleural effusion. Therefore, drugs having properties of lekhana, mootrala, kledahara, kaphahara are selected here for the treatment of pleural effusion. The treatment modality aims to take a non-invasive approach to reduce the fluid accumulation in pleural cavity and to avoid further damage. All drugs involved in the given treatment regime have abilities to remove fluid from the pleural cavity due to their kledahara property.

Udwarthana, bashpa swedana followed by dhanyamla and dashamoola Kashaya dhara act as medasa pravilayana , kapahara, shothahara and shoolahara.The oral medications such chitrakadi vati , hinguvachadi gutika, pachanamrutham Kashaya ,Agnitundi vati promotes jataragni and reduces kapha. Agnichikitsalepa consist of 10 drugs such as lashuna, lavanga, maricha, sarshapa, haridra, agnimantha, vana tulasi, nirgundi, papata and bandha which possess agni Deepana,ama Pachana, Rukshana Chikitsa. Virechana with thrvruth lehya and ushnajala anupana act as thridoshahara, agnideepana and koshtashodhaka. This induces improvement in digestion, blood circulation and reduction in the fluid accumulation in the pleural cavity.

According to the treatment principle of urasthoya, yogas mentioned in kasa, shwasa and shotha can be adopted according to the avastha of the rogi.[9] Hence yogas like Vasakavalehya combination of churna -Sitopaladi Churna (20g) + Haritaki Churna (20gm) +Avipattikara Churna (20gm) + Shringyadi Churna (30g) +Abhraka Churna (5gm) + Godanthi Bhasma

(20gm) +Guduchi Satva (30gm) which is mentioned in kasa shwasa chikitsa was given to the patient. Gokshuradi guggulu can act as mutrala, shothahara and rasyana in this condition.

According to ayurveda samhitas, churna pinda sweda is termed as best vata kaphahara, ama pachana and vedanahara because of its ruksha, ushna, theekshna properties.it is mainly indicated in santarpanajanya conditions. Here we have used local churnapinda sweda with kolakulathadi churna and lavana for its kapha-kledahara guna.

CONCLUSION

The treatment protocol containing *Rookshana, agnideepaka, amapachana kaphaa kledahara* and *mootrala panchakarma* therapies along with by *Shamanaoushadhi* is given in this case of *urasthoya* (pleural effusion). This protocol is found to be effective in clinical, and radiological aspect of this case. During the follow up period also symptomatic relief was maintained.

The present case study is a good example showing dreadful impact of faulty lifestyle. Due to rational approach of ayurvedic treatment applied in such patient by using basic principles of ayurveda and by taking pathology in relation with its causative factors into consideration, it clears that ayurveda can efficiently manage such condition with similar symptoms in the early stage of disease without causing any undue effect with multiple secondary benefits also. The progression of disease into a further phase can be prevented in such patients to avoid invasive interventions like thoracocentesis in advanced stages.

Further research with larger sample size is needed to establish the utility of the given treatments.

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