

## PRECAUTIONS & CONTRAINDICATIONS

VIPEL IS A PRESCRIPTION DEVICE. TO BE SOLD & USED UNDER THE ADVICE OF A QUALIFIED MEDICAL PRACTITIONER.

1. **IT IS PRIMARILY INDICATED ONLY FOR LOCALISED OEDEMA OF LYMPHATIC AND VENOUS ORIGIN.** The prescribing doctor is requested to ascertain to his satisfaction that oedema is not of any generalised cause like cardiac, renal, hepatic, Cor Pulmonale, Hypo-proteinemia, Beriberi, or any cause in which renal blood flow is impaired or any cause when increased lymphatic and venous return is contradicted. Diuretics may be recommended if any generalised associated cause is suspected along with lymphatic oedema. These are especially required at the initiation of therapy. (\*See note below\*)
2. **DO NOT GIVE THERAPY DURING ACTIVE EPISODES OF LYMPHANGITIS or PHLEBITIS** (for venous oedema ).
3. **NOT TO BE USED IN PATIENTS WHO ARE INSENSITIVE TO PAIN IN THE LIMBS DUE TO ANY PERMANENT OR TEMPORARY CAUSE LIKE DIABETIC NEUROPATHY. PARALYTIC CONDITIONS AND ESPECIALLY AFTER INGESTION OF ALCOHOL OR NARCOTIC DRUGS.**

### WHAT TO DO IN CASE OF POWER FAILURE?

When ever the machine switches off due to any reason the pressure will start falling. However no pressure will be generated till power comes back. Continued wearing of encasing is uncomfortable due to sweating etc. so it should be removed till power comes back.

*For further enquiries contact :-*

### AMLA MEDIQUIP

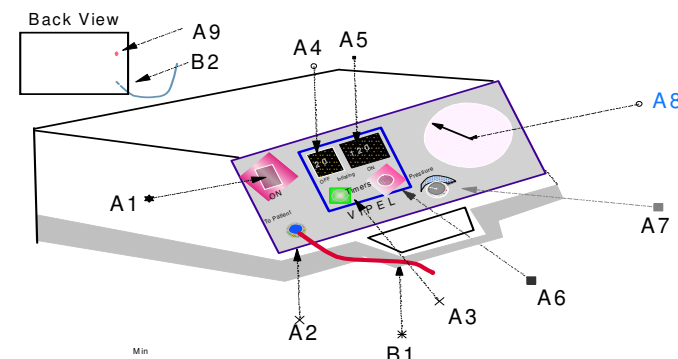
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\* Some patients report a fall in weight up to 2 kilos on the 1st day itself. This is a massive reabsorption of protein rich fluid from the affected limb by the rest of the body. Otherwise normal & healthy individuals can tolerate this shift by excreting it through the kidneys. (Patients feel like going to the toilet within an hour of starting compression therapy). Thus in compromised situations like those of the **Heart, Kidneys and severe Obstructive Lung Disease care is required**

- (1) Start therapy only if essential after treating other causes.
- (2) Diuretics should be started well before treatment therapy.
- (3) Start with very low pressure and for less time initially.

# VIPEL

## INSTRUCTION MANUAL



### LEGENDS FOR CONTROL PANEL

#### A Group

(Components of Control Panel - front side)

- (A1) Mains Power Lamp Switch
- (A2) Air Outlet
- (A3) TIMER ON Indicator lamp (Green)
- (A4) DEFLATION/OFF TIMER (Range 0-99 seconds)
- (A5) INFLATION/ON TIMER (Range 0-199 seconds)
- (A6) COMPRESSION ON Indicator lamp (Red)
- (A7) Pressure control knob
- (A8) Pressure Gauge
- (Back Side - inset)
- (A9) Fuse (1 Amp, 1 Inch)

#### B Group

(Cords and pipes)

- (B1) Connecting Pipe - 2 metres Length (to be attached to Front Side)
- (B2) Power cord - 200 - 240 Volt A/c (Back Side)

**USE UNDER MEDICAL SUPERVISION**

## TECHNICAL SPECIFICATIONS

### CHASIS

DIMENSIONS	12 X 8 X 6 Inches
CHASIS	ABS Plastic
WEIGHT	3 kg
MISC	Ergonomically placed handle for easy portability
AIR OUTLET	One

### POWER

POWER SUPPLY	200 - 240 Volts A/C 50 Hertz
POWER CONSUMPTION	20 WATTS (MAX)
FUSE	1 amp. 1 inch

### CAUTIONS

[1] VIPEL IS A PRESCRIPTION DEVICE TO BE SOLD AND USED UNDER THE ADVICE OF A QUALIFIED MEDICAL PRACTITIONER.

[2] DO NOT GIVE THERAPY DURING ACTIVE EPISODES OF LYMPHANGITIS OR PHLEBITIS (for venous oedema), AND WITH CAUTION IN PATIENTS WITH HEART, KIDNEY OR SEVERE LUNG DISEASE

[3] NOT TO BE USED IN PATIENTS WHO ARE INSENSITIVE TO PAIN IN THE LIMBS DUE TO ANY PERMANENT OR TEMPORARY CAUSE LIKE DIABETIC NEUROPATHY, PARALYTIC CONDITIONS AND ESPECIALLY AFTER INGESTION OF ALCOHOL OR NARCOTIC DRUGS.

[4] TIMERS & VALVES MAY MALFUNCTION OR FAIL COMPLETELY DURING LOW VOLTAGE OR FLUCTUATIONS. USE OF A VOLTAGE STABILIZER (ORDINARY OR SERVO - FOR POWER CONSUMPTION OF 30 WATTS) IS MANDATORY IN SUCH AREAS.

**See accompanying text for details of use**

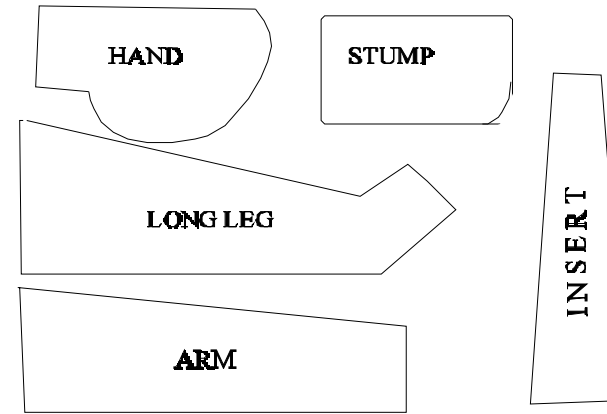
### VIPEL Pump Mechanism

Models Available : Basic, Clinical, Hospital

### INTRODUCTION

V.P.L. is a system designed after extensive research on Elephantiasis of Indian patients problems. Before using this machine do go through this information bro-

## VIPEL ENCASINGS



### RECOMMENDED PRESSURE CHART

Suggested Pressure Settings	Timers		Encasing*	Daily Duration Treatment		Contra-indications
	ON	OFF		Time	Weeks	
ELEPHANTIASIS 110-160 mm Hg	150-180	45-60	LL	3-4 Hrs.	2-8	Acute Infection & Wounds
VENOUS EDEMA /VENOUS ULCER 70-110 mmHg	90-120	30	LL	2-4 "	1-4	Phlebitis
HAND STIFFNESS 30-50 mmHg	30-60	30-60	SA	15-30	1-2	1. Open Wounds min.
STUMP FORMING 30-50 mmHg	30-60	30-60	AS	15-30 min.	1-2	2. Less than 2 weeks after surgery
D.V.T. PREVENTION 20-50 mm Hg	90	30	SL	As	—	Use only clinical/ advanced Model required

**Encasing Not Deflating** (Pt feels tight pain or pressure)

If Emergency -(severe discomfort or pain) **disconnect tube from encasing.**

Problem	Solution
a) <i>Timer On indicator is continuously on or off for a very short while.</i>	a) <b>Increase OFF TIMER setting##</b> till it switches off for a satisfactory time.
b) <i>Indicator lamps is off not be in blocked by pts weight).</i>	b) <b>Adjust position of encasing</b> (Nozzle should a dependent position as it may be

**AT ANY TIME IF PATIENT HAS PAIN DUE TO TIGHT PRESSURE, DISCONNECT TUBE TO RELEASE AIR FROM THE ENCASING**

FOR ANY PROBLEMS NOT SOLVED BY THE ABOVE, PLEASE CONTACT AMLA MEDIQUIP FOR SERVICE.

**Revision of procedures in Brief**

**SWITCHING ON**

- (For first pt.) - Set Treatment Time
- Switch Mains on
- (For every pt.) - Zip up encasing
- Switch Outlet on
- Adjust pressure by closing nozzle
- Connect encasing to correct outlet
- Set timers
- Once fully inflated check pressure and adjust if required.

**SWITCHING OFF**

- (For every pt.) - Switch off Outlet
- Disconnect encasing from nozzle pipe
- Unzip encasing
- (After last pt.) - Switch Mains Off
- **Fold and pack Encasing.**

**EMERGENCY - Disconnect Encasing.**

chure. It will help you in achieving the desired results.

**MECHANISM OF ACTION**

VIPEL is a variable intermittent pneumatic external limb compression system. This essentially consists of two parts.

- [a] The pump which you have purchased and
- [b] The encasing (also supplied by our company) which has different sizes & shapes to suit your needs.

The classical recommended treatment of lymphoedema is elevation, massage and compression stocking. The VIPEL compression system provides a mechanical pumping action on the lymph distended tissues of the limb pushing the extra cellular fluid back into the vascular compartment. This is more than a simple massage effect. Recent evidence suggests this causes internal heat generation with its resultant anti-inflammatory effects.

Essentially the limb is completely enclosed in an inflatable encasing which is then inflated by the VIPEL pump. A rhythmic cycle of full and nil pressures is then initiated to bring out the above mentioned effect with the help of cyclic timers.

THE PUMP (VPL) is an intermittent source of air pressure to the encasing which is wrapped around the affected limb. The inflation pressure is varied by the three different knobs provided on the front panel.

a. **PRESSURE CONTROL KNOB** (No. A3) - This is used to control the pressure transmitted to the limb. At the maximum, the pressure to the encasing will reach up to 160-180 mm mercury (an automatic release valve does not allow pressure to go beyond this for patients' safety). The minimum level is with the indicator at the 7 O'clock position. Pressure is increased by turning this knob clock wise. Pressure regulation is possible from 0-160 mm Hg. Please use accompanying chart for different conditions.

USE ONLY RECOMMENDED PRESSURES.

b. **COMPRESSION or ON TIMER** (No. A6)- This regulates flow to the encasing. It can be set between 0-199 seconds. Adjustment is by manually increasing or decreasing the number. (Pressing the small thumb switch above the relevant digit increases and below decreases) During this time (i.e. After the initial filling period) the encasing will press the limb for the time set. The pressure gauge needle will rise slowly to the peak pressure required and remain there till this time function is completed and switched to off.

c. **RELEASE or OFF TIMER** (No. A7)- This is also a variable time setting device to regulate switching OFF of the air pressure supplied to the encasing. It can be set between 0-99 seconds. Adjustment is by manually increasing or decreasing the number. (Pressing the small thumb switch above the relevant digit increases and below decreases). During this time the pressure gauge needle will drop slowly to zero indicating that the pressure is now equal to atmospheric pressure and remain so till the set time is completed. The ON TIMER will again switch on once the OFF TIMER finishes its function and hence the entire cycle is repeated automatically continuously till the machine is switched off. The indicator lamp on the right (pressure on) glows every time the TIMER ON is in function.

**THE ENCASING-** Specific details of each encasing are supplied with the type ordered. It is zipped on the affected leg or arm as a stocking or gauntlet. The single outlet is then connected to the air supply pipe and the pump is switched on.

The Encasing should ideally go 10 cms above the upper limit of the swelling. Use an Insert for limbs with a wider circumference. The Insert is zipped up in between the two open ends of the encasing as shown. Use of a stockinette is recommended to prevent cross infection between patients as well as sessions

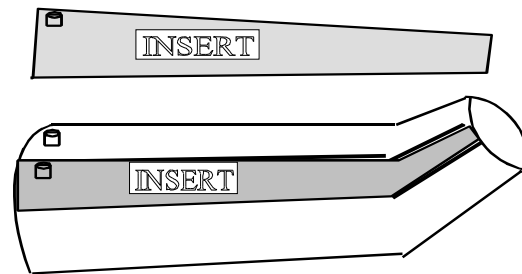
Instructions

**SWITCHING ON THE MACHINE**

(A) Zip up a suitable encasing on to the patient's limb. (To confirm suitability please consult your doctor, or write to AMLA MEDIQUIP for a copy of Dr. S. B. GOGIA's book "VPL Therapy for Filariasis Lymphoedema in India"). Place the garment around the limb to be treated so that the zip when closed, will be on the anterior surface (front) of the limb. Failure to apply the garment correctly may result in improper physiological pressures being applied to the treated limb.

(B) Switch on the required outlet. The Power On indicator lamp (No. A 1), the Timer On lamp (Green - No. A 3) as well as the Compression On lamp (Red - No. A 5) of the outlet in use, will light up. The former two shall stay on throughout the time the machine is in use.

(C) Before switching on check pressure by closing the exit nozzle with your finger.



(L) After a few weeks you will notice that further improvement is not occurring. At this time please consult your doctor regarding surgery or use of Esmarch bandage as well as need for surgery. After surgery or once your doctor is sure that the limb has reduced to a maximum, send your measurements for the fitting of (permanent) VIPEL STOCKING. For your help forms and tapes for the same have been included in the package supplied.

*Further details like indications for the machine usage, period of therapy, type of therapy, pressures etc. can be obtained from accompanying the other literature provided. These are 1) **VIPEL General information brochure** 2) **VIPEL Clinical Applications brochure** and 3) "**VPL Therapy for Filariasis Lymphoedema in India**" book written by Dr. S. B. Gogia - ask AMLA MEDIQUIP at the given address for your free copy if not already provided.). These are also available at the AMLA MEDIQUIP Website (<http://www.amlamed.com>)*

**PROBLEM CHECK LIST (WHICH YOU CAN SOLVE)**

Problem	Solution
<b>Machine not switching on</b> - Main switch is Off	1. <b>Check power source fuse &amp; Plug</b> etc.
<b>Encasing Not Inflating</b> - Pt feels no pressure - Pressure gauge shows zero	1. <b>Check Timer on lamp (red)</b> It should be on (adjust timers) 2. <b>Check Off Timer Setting##</b> 3. <b>Check pipe fitting</b> they should be proper & without leakage. 4. <b>Check encasing</b> for leakage etc.. 5. <b>Check Voltage</b> -valves & timers may malfunction below 220 Volt or above 250 volts. Use a stabilizer (Ordinary Fridge /TV Type or Servo for 20 watts power consumption) if low voltage or fluctuation is a problem in your mains supply.

**##This is the commonest problem so it requires a little explanation** - The most sensitive and import knob regulating the overall flow is the **Off Timer** - time taken to fill the encasing at required pressures requires on the average four times the time to empty it. As explained in item(l) above the knob has to be kept above 20secs and regulated in very small multiples of 2-3 secs up or down.

control setting can be adjusted before initiation of the therapy by closing the exit nozzle by a finger tip or once the encasing is fully filled. ADJUST THE PRESSURE AND THE TIME SETTING ACCORDING TO THE RECOMMENDED CHART.

(H) Full effect will be seen once full pressure is reached At this stage one can reset pressure knob and the timers again according to the need and amount of pain.  
Note(H) - Increase of pressure through the pressure control knob or timers (increase On cycle time and decrease OFF cycle time till the specified limit i.e. Not less than 30 seconds off or 1/4th of On time) could give some further reduction in swelling.

DO NOT EXCEED RECOMMENDED PRESSURE.

**Patients are cautioned not to alter the treatment pressure or other aspects of the treatment regimen prescribed by their physician.**

(I) In all cycles (except the initial 1 or 2 for filling) the pressure gauge needle should rise to its maximum during the On Time. (the pressure control should be manipulated at this stage) and fall to zero during off time. The zero pressure should be maintained for a minimum 15-30 seconds (hence the notification that off timer should be 30-45 seconds or more).

#### SWITCHING OFF

(J) Once the treatment time for the patient is over, the outlets on that side will switch off. Disconnect the encasing from the connecting pipe. Switch off the Outlet (A 1) and disconnect the power cord (No.B 2).

NOTE - In the Advanced or Hospital Models, the outlet itself will turn off after the set time is over. In case further therapy is required to be given, switch the mains of that side Off and then On again. Just resetting the thumb control upwards may not be reliable.

(K) Always TIE a crepe bandage or appropriate snugly fitting pressure garment at the end of the treatment. Keep this on till the next therapy session. (AMLA MEDIQUIP provides you with a temporary stocking for this purpose, please write to us quoting your limb size).

NOTE (K)- After each session your limb size will become smaller so the pressure garment you were using will become loose and ineffective. In between sessions a crepe bandage is thus more preferable. COBAN® from 3M company is specially suited for lymphoedema patients as it has an autostick property which does not let it slip.

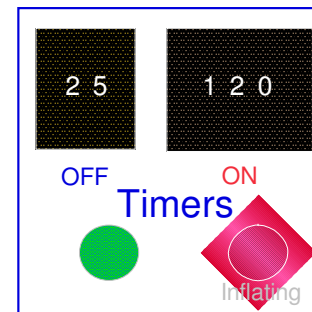
Switch off the mains supply and repack the encasing after completion of therapy of all patients.

The pressure gauge needle (A 8) will start rising. Adjust pressure knob (A 2) to required pressures.

NOTE (C) In general, peak pressures with the encasing connected will be lower than those indicated as above. During initial use frequent adjustments will be required. Some idea may also be gained by the amount of tightness of the encasing a particular pressure gives.

(D) Connect the encasing to the pump by means of the connecting pipe. Ensure a tight leak proof fit on both ends. (If the pipe is broken, bent or leaking please write to AMLA MEDIQUIP, quoting required part for a replacement). Position the Air Delivery Tubes so that they are not kinked or pinched.

(E) Immediately the encasing will start filling up. The red indicator lamp (No. A 6) will also light up. The initial filling time for the encasing varies between 3 and 5 minutes. During this period no compressive action is in play on the limb.



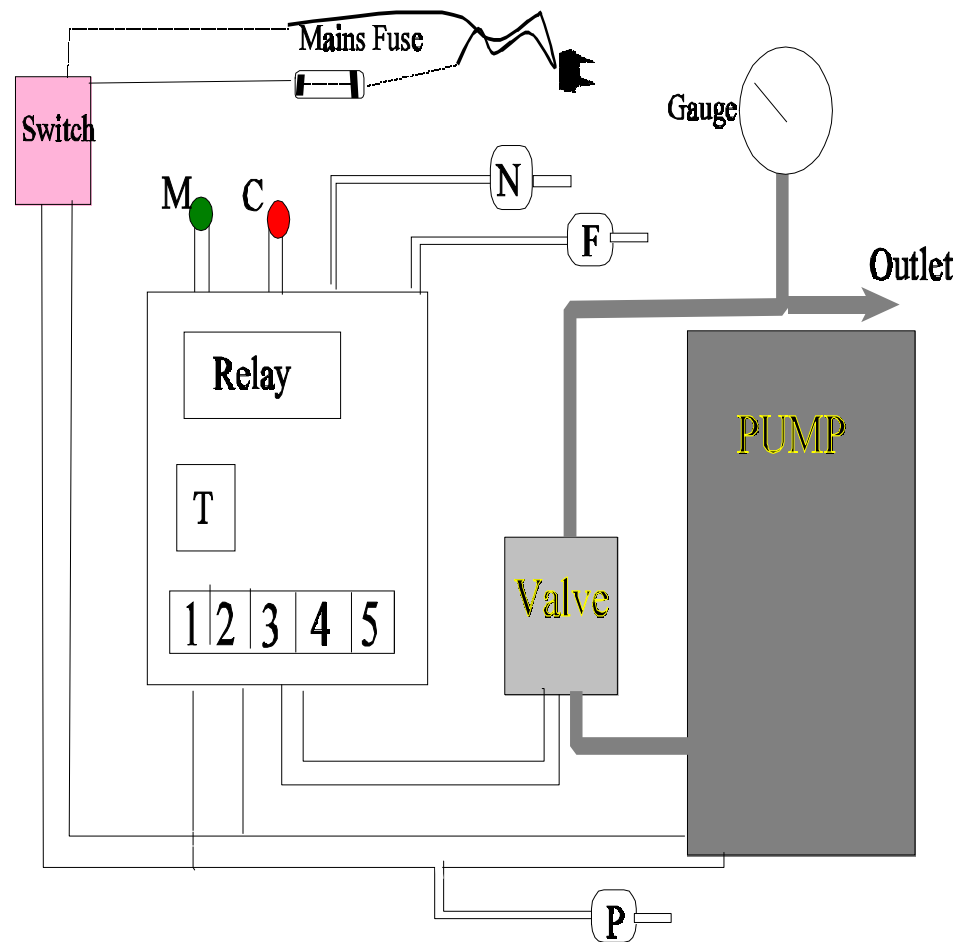
Set the timers to your need. The ON TIMER (No .A 5) is kept in between 120-180 seconds (maximum) and OFF TIMER (No. A 4) is set between 20 - 45 seconds.

**Helpful Hint** :- At the start of therapy one can keep the OFF TIMER at zero and pressure control at full for faster filling, but as soon as it is filled, change to the above.) The zero of both the timers is setting to the left horizontal level (7' 0-clock). Turn clockwise for increase and counter clockwise for decrease.)

NOTE (E) The timers are working on override function i.e. once the particular timing cycle starts that timer cannot be reset till the set time is completed. Reset time will work only from the next cycle. Even if the machine is switched off this timing cycle will continue. Switching on again will switch on the particular timer which has yet not completed its cycle. After the cycle is completed On Timer comes into play once the machine is switched on.

(F) The ON TIMER functions with power on (for exceptions see note E above). At the end of the ON TIMER's set time, the red indicator lamp (No. A 6) will switch off. Simultaneously OFF TIMER cycle shall start. Similarly as the set time of OFF TIMER is over the ON TIMER will start on its own. The indicator lamp (No. A 6) will light up each time when the ON TIMER is on. Change of TIMERS is associated with a change over sound.

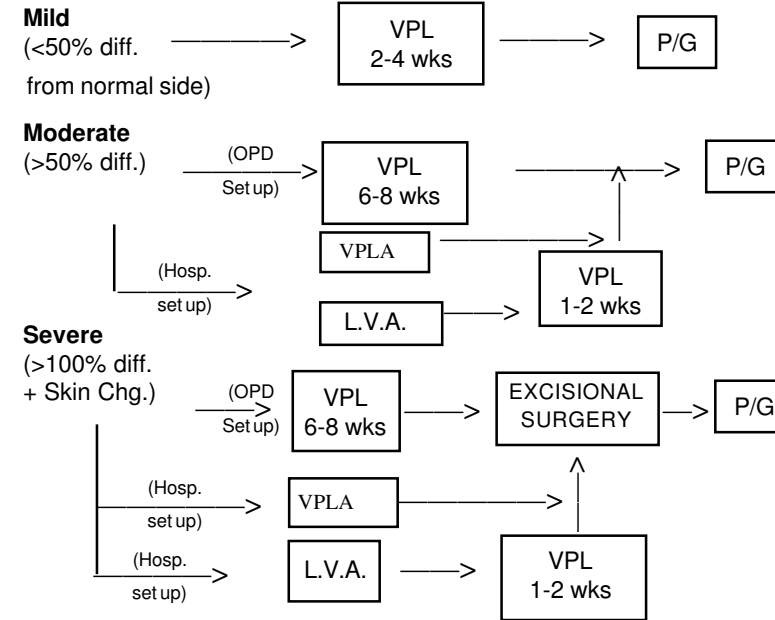
(G) The pressure control knob (No. A 7) is regulated to need. In case the patient feels pain or too much pressure, open the knob by turning anti clockwise. Pressure



**Legends :** M = Timer working indicator, C = Compression On Indicator, T = Transformer, N = On Timer Potentiometer, F = Off Timer Potentiometer, P = Pressure Setting Potentiometer, 1-2 = A/C Input to Timer, 3-4 = N/C Output

## SUGGESTED TREATMENT PROTOCOL FOR FILARIAL CASES

### DISEASE TYPE



VPL = Variable Pneumatic Limb Compression  
P/G = Pressure Garment\*\*  
L.V.A = Lympho-Venous Anastomosis surgery  
VPLA = Compression after admission (18-22 hrs/day)

### GENERAL MEASURES RECOMMENDED IN ALL CASES

1. Skin hygiene including care of cuts, ulcers and fungal infection.
2. Leg elevation and massage, use of temporary stocking and/or crepe bandage in between compression therapy sessions.
3. Several courses of DEC (Hetrazan etc.), if not taken previously for Filariasis Cases
4. Monthly injections of Benzathine Penicillin if the patient is getting recurrent attacks of fever.

Recurrences with this therapy occur in case the pressure garment gets torn or loose. 3-4 days of VIPEL along with a fresh pressure garments suffices.

\*\* Detailed information brochure on pressure garments (VIPEL stockings) available on request.