

Case Report



Ayurvedic management of Nicolau Syndrome W.S.R to *Agantuja Vidhradhi* and *Kotha* – A case report

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ABSTRACT :

Introduction: Injection therapy is a part of general clinical practice in today's life by doctors. Sometimes, unanticipated outcomes of injection therapy are seen in the clinical practice Nicolau syndrome (NS) is one such rare cutaneous adverse reaction found at the site of injection. Freudenthal and Nicolau first explained it as a side effect of the bismuth salts used to treat syphilis in 1924 and 1925, respectively. **Clinical Findings:** A 38-year-old male presented with complaints of mild fever and discolouration of skin over gluteal region. Local examination of the Rt gluteal region (lateral aspect) showed a tender, indurated blackish discoloured skin with a raised Localised temperature, and no discharges. **Intervention:** The case was diagnosed as Nicolau syndrome according to modern science and *Agantuja vidhradhi* (ED-9.8) as per *Ayurveda* progressing to *Kotha*. The case was treated successfully with *Bhedana Karma* and *Chedan Karma* followed by *Vrana Shodhana*, *Ropana Chikitsa*, and oral medications. **Outcomes:** The wound was completely healed with mild contracture in 42 days. **Conclusions:** NS can be managed successfully with *Ayurveda* treatment but there is a need to exercise utmost care during the administration of any injection therapy and awareness about this condition

KEYWORDS: *Agantuja Vidhradhi*, *Bhedana Karma*, *Chedana Karma*, *Kotha*, Nicolau syndrome, Case report

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1. INTRODUCTION

Nicolau syndrome (NS) is an uncommon iatrogenic skin manifestation which poses a major risk and places a financial strain. The syndrome occurs as a cutaneous adverse reaction after intra-muscular or intra-articular injection of various drugs.[1] This condition is characterized by immediate pain after injection following erythema or blanching, livedoid, and haemorrhagic patch, further leading to skin, adipose, and muscle layers being necrotic.[2] The occurrence of the syndrome has been seen with the administration of various drugs including NSAID's, corticosteroids, vitamins, vaccines, and penicillin.[3] Clinical features of the syndrome have 3 phases: initial, acute, and necrotic, its treatment consists of medical and surgical therapies depending on the phase where surgery is the treatment of choice during the necrotic phase. *Pseudomonas aeruginosa* and *Staphylococcus aureus* are the common organisms found in culture reports of NS.[4] NS can be correlated with *Agantuja Vidhradhi* (Abscess due to trauma/exogenous cause ED-9.8) and *Kotha* (Putrefaction) as per Ayurveda which presents with signs like *Pakwaudumbar* (swelling resembling ripe fruit of fig), *Syava* (blackish discoloration), *Jwara* (fever), *Daha* (burning sensation), *Kshiprapaka* (quick suppuration).[5] *Acharya Shushruta* explained *Bhedana Karma* (therapeutic incision) followed with *Vrana Shodhana* (wound cleansing) and *Ropana* (wound healing) for better treatment outcome.[6] In this case, after *Bhedana Karma* (Incision) excessive *Kotha* (putrefaction) was seen which is not usually encountered in *Agantuja Vidradhi* (abscess due to

trauma/exogenous cause). The case has been managed with Ayurvedic treatment showing positive results and good outcomes with faster healing (within 42 days) as no further necrosis of tissue was seen reducing a recovery/healing time which usually gets delayed in cases with presence of putrefied tissues.

2. CASE REPORT

A 38-year-old year non-diabetic and non-hypertensive male patient presented with painful, well-defined swelling and brownish-black discoloration (Fig. 1a) along with a mild foul smell over the right gluteal region with a size of approximately 8×10cm for 10 days. The case was managed at KLE Ayurveda Hospital Belagavi Karnataka. On probing into the detailed history, it was noted that about 10 days back, the patient was given an intramuscular (NSAIDs) injection into the right gluteal region for generalized body ache. After receiving the injection patient immediately experienced severe pain followed by oedema at the site of injection, which did not subside for 2 days. For which the patient was treated with conservative management with Antibiotics and Anti-inflammatory drugs for a week. The patient got symptomatic relief in pain and slight relief in oedema, after 7 days of conservative treatment, but the patient noticed a blackish discoloration along with a foul smell and slight pain in the right gluteal region. There was no other drug intake or systemic illness.

a. Clinical findings

A Local examination of the Right gluteal region (lateral aspect) showed a tender, indurated blackish discoloured skin with a raised Localised temperature, and no discharges. *Visra Gandha* (foul smell) was encountered.

Past history and family history were not relevant to the disease. The patient was Anaemic, moderately built, and moderately nourished. Systemic examination reveals tachypnoea and tachycardia with an increased pulse rate (106 beats/min). Blood investigations showed a WBC count of 9600 cells/cu mm (Neutrophil 63%, Lymphocyte 43%, Eosinophil 04%), ESR 55mm/1st hour, RBS 89 mg/dL Hb 11.4 gm%, Blood urea - 30 mg/dL, Serum Creatinine 0.9 mg/dL, HbsAg, HIV I and II were negative. Urine investigations were under normal limits.

b. Intervention

The treatment was planned according to the history, *Dosha* (regulatory functional factors of the body) involvement, and the indicated treatment principle for *Agantuj Vidhradhi* i.e *Bhedana Karma* (Fig. 1b) followed by *Vrana Shodhana* and *Ropana* (Fig. 1c) was planned

Table 1: Timeline of Case

Plan of care	Procedure	Duration (Days)							
		1	2	3	4	5	6	7	8-42
Chedana	Surgical debridement	✓							
Vrana Shodhana	Prakshalana with Panchavalkala Kashaya	✓	✓	✓	✓	✓	✓	✓	✓
Vrana Ropana	Local application of Jatyadi taila	✓	✓	✓	✓	✓	✓	✓	✓
Vrana Bandhana	Bandaging	✓	✓	✓	✓	✓	✓	✓	✓
Cap Grab	1 capsule three times a day after food	✓	✓	✓	✓	✓	✓	✓	✓
Asanadi Kashaya	4tsf three times a day with equal amount of water after food		✓	✓	✓	✓	✓	✓	✓

d. Follow-up and outcome

The patient was discharged on 2nd day after the procedure with stable vitals and was called for dressing and was advised to take Capsule Grab one capsule three times a day after food, *Asanadi Kashaya* 4 tablespoons

along with oral medications. The patient was posted for Incision under local anaesthesia with prior informed consent and confirming all the routine pre-surgical investigations. Under all aseptic precautions painting and draping were done. Incision (*Bhedana Karma*) followed by Excision (*Chedana Karma*) of necrotic tissue was done and the wound was packed after achieving haemostasis. During the procedure after the incision amount of pus drained was very less may be due to the history of a conservative line of management and the amount of putrefied (*Kotha*) tissue debrided from the injection site was approximately 6 -7 cm in depth which is suggestive of intense necrosis of adipose tissue after *Agantuja Vidhradhi*.

c. Timeline (Table. 1)

three times a day with an equal amount of water, daily dressing with *Panchavalkala Kashaya* (decoction) *Prakshalan* (wound cleansed with liquids) and *Jatyadi Taila* (oil) dressing for 42 days. Initially, assessment of the wound was done on every 3rd day for a week and

later it was assessed on every 5th day. During management, it was seen that there was no further necrosis of tissue, and the cavity of the wound was

filling with healthy granulation tissue, intensity of pain was reduced, and the wound took 42 days to heal with mild contracture. (Table. 2)

Table 2: Follow-up and outcomes

Wound parameter	Assessment of parameters in Days									
	1	4	7	12	17	22	27	32	37	42
Size	8×10cm	8×10cm	7.8×9.7cm	7.2×9cm	6.6×8cm	6×7.2cm	5.2×6cm	4.5×5cm	3.2×3.8cm	2×3cm
Shape	Transversally oval					Spherical				
Depth	6cm	5.8cm	5.5cm	5cm	4.4cm	3.7cm	2.8cm	1.6cm	0.8cm	-
Discharge	Purulent (Pus)				Serous				-	-
Edge	Sloping									
Floor	Necrosed tissue	#PGT	#PGT	#PGT	#PGT	#RGT	#RGT	#RGT	#RGT	#RGT
Odour	Foul smell (visra gandha)	Foul smell	Foul smell	-	-	-	-	-	-	-

*PGT- Purulent discharge with unhealthy granulation tissue, *RGT- Red Healthy granulation tissue.

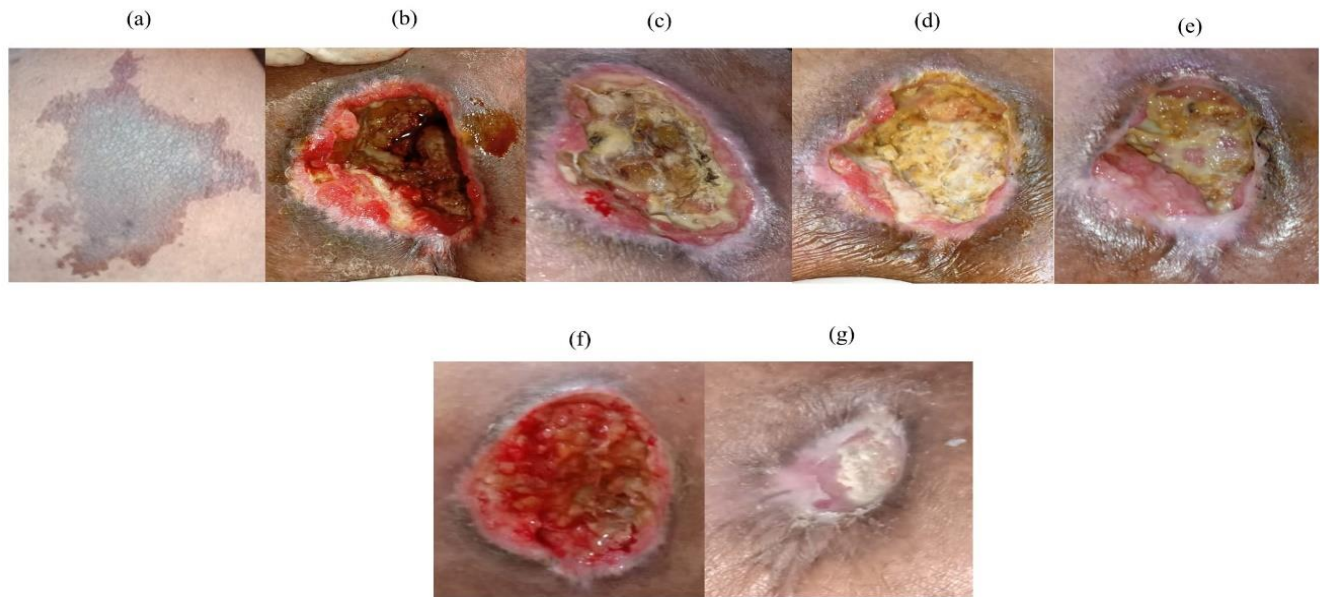
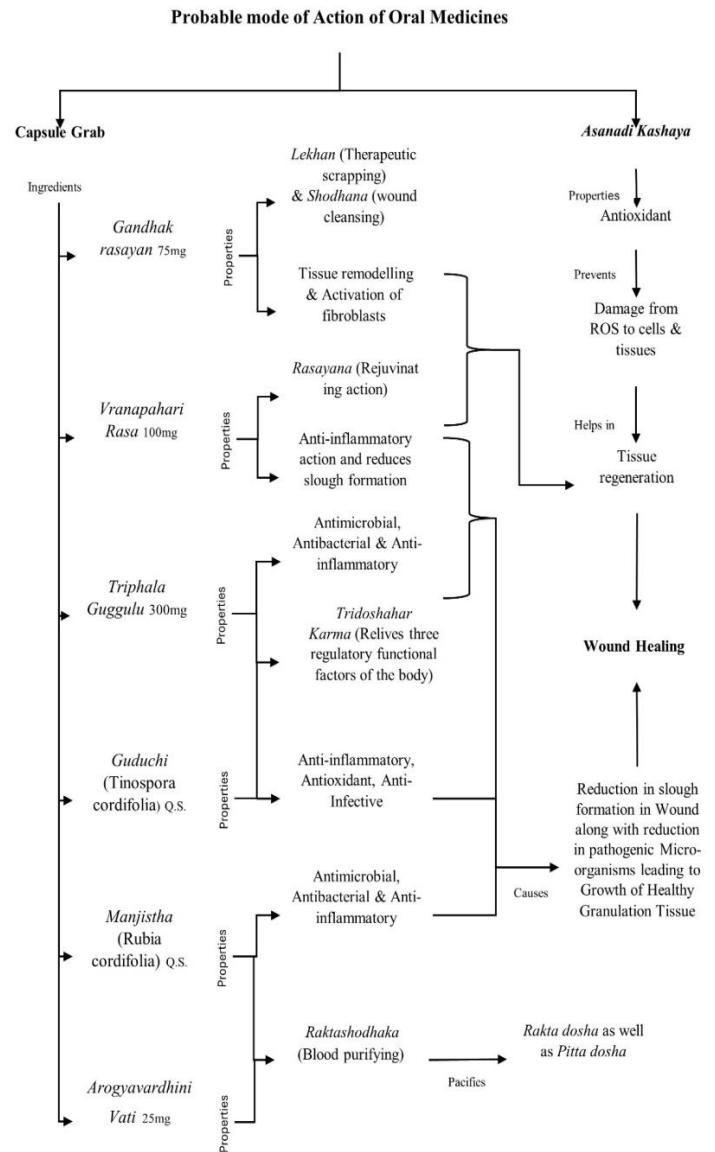


Figure 1: Therapeutic interventions (a) Before intervention on first day, (b) wound on 3rd day of dressing, (c) wound on 7th day of dressing, (d) wound on 17th day of dressing, (e) wound on 22nd day of dressing, (f) wound on 27th day of dressing, (g) wound on 42nd day of dressing

3. DISCUSSION

With the advancement in medical science, there is still no standard treatment protocol for managing this rare cutaneous syndrome involving skin, subcutaneous fat, and muscle tissue. Various published review articles and case reports have shown that the management of NS is entirely based on the phase of the disease which ranges widely from conservative management in the initial phase to the surgical management in the necrotic phase.[7] In the present case the patient had a history of IM injection in the gluteal region for generalized body ache. In *Agantuj Vrana* (wound by exogenous cause) *Pitta Pradhan* (Pitta predominant) *Vatadi Doshas* get aggravated involving *Kapha Dosh* leading to *Paka* (suppuration) at accumulated site causing *Agantuj Vidradhi* further leading to *Kotha* if not treated on time. Based on *Doshas* involvement and clinical manifestation oral medicine were prescribed (Flow diagram: 1,2). In cases of significant tissue loss, contractures and deformities brought on by scarring are NS complications.[7] We advised patient for skin grafting as there was extensive wound area, but the patient refused for it due to his economic condition and his fear for undergoing one more surgical procedure hence it resulted in wound contracture after complete healing. However, it has been reported that the average recovery time in cases of NS ranges from 8 weeks to 6 months,[8] or even more depending upon various factors like delayed presentation, presence of necrosed tissue, involvement of deeper fascial planes, and patient Comorbidities which have crucial role in delaying

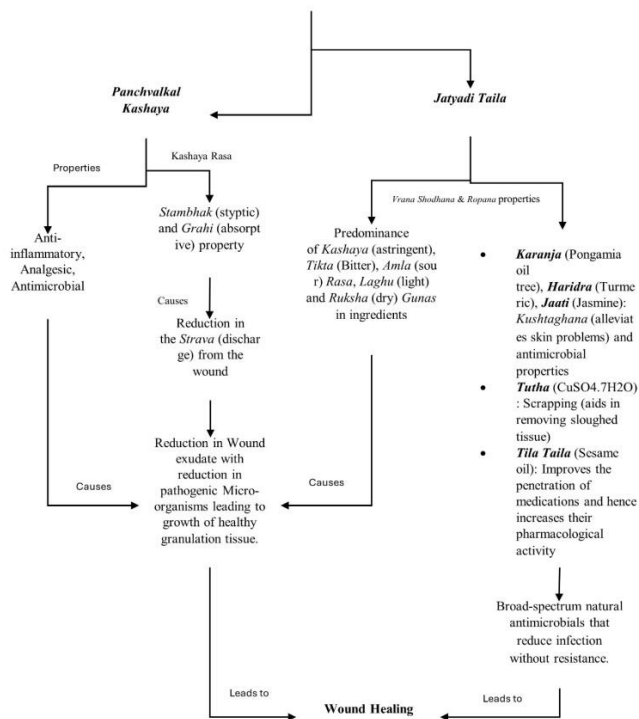
recovery time. As in our case depth of wound was more with more extensive necrosis at the depth which was successfully treated by both oral and local treatment, as it prevented further necrosis in the wound and promoted the growth of healthy granulation tissue which led to faster healing of a wound.



*ROS- Reactive oxygen species

Flow diagram 1: Oral Medicines Mode of Action

Probable Mode of Action of Local Treatment



Flow diagram 2: Local Treatment Mode of Action

CONCLUSION

A rare form of iatrogenic ischemia necrosis of the epidermis and deeper tissue is known as Nicolau syndrome. The wound in the current case took more than a month to completely heal, leaving scarring and deformity. A successful surgical outcome has been achieved with early wound debridement, oral medicines, and adequate dressing.

Declaration of Patient Consent – The authors confirm that they have acquired a patient consent form, in which the patient or caregiver has granted permission for the publication of the case, including accompanying images and other clinical details, in the journal. The patient or caregiver acknowledges that their name and initials will not be disclosed, and sincere attempts will be undertaken to safeguard their identity. However, complete anonymity cannot be assured.

Patient perspective - I had taken an injection for my generalized body ache, but I didn't have any idea that it would further lead to so

much complication. I am happy now as my wound is completely healed. I also want to thank all the doctors who treated me and gave me timely advice to get operated.

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