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Multi-nodular Goitre and Emotional Suppression: Demonstrating the Psycho-Neuro-Endocrine Perspective Through a Homoeopathic Case Report

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ABSTRACT

Multinodular goitre (MNG) is a common structural disorder of the thyroid gland characterized by the presence of multiple nodules within an enlarged thyroid. Thyroid nodularity represents a substantial clinical burden; a systematic review and meta-analysis involving 9,276,178 individuals estimated the overall prevalence of thyroid nodules at 24.83%, approximately one in four individuals, with a higher prevalence among women (36.51%) than men (23.47%). Clinical studies of MNG have also demonstrated a marked female predominance, although the magnitude varies according to population and diagnostic methodology. Beyond established biological and environmental determinants, increasing interest has been directed towards the interaction between psychological stress and endocrine function. Emotional suppression, particularly the persistent inhibition or non-expression of emotional experiences, may contribute to alterations in stress-response systems through psychoneuroendocrine and neuroimmunological mechanisms. Chronic psychological stress has been associated with modulation of the hypothalamic–pituitary–adrenal and hypothalamic–pituitary–thyroid axes, although its specific role in the development of structural thyroid disorders such as MNG remains uncertain. This case explores the psycho-neuro-endocrine perspective of emotional suppression in a patient presenting with multinodular goitre and describes the individualized homoeopathic approach adopted.

Keywords: Multinodular goitre (MNG), Suppression, Psycho-neuro-endocrine, Homoeopathy, Case report.

INTRODUCTION

Multinodular goitre (MNG) is an enlargement of the thyroid gland characterized by the presence of multiple structurally and functionally heterogeneous nodules, usually arising through repeated cycles of thyroid follicular hyperplasia and involution over time. The nodules are predominantly hyperplastic but may include colloid-filled areas, cystic changes, and autonomous nodular tissue. MNG may occur with normal thyroid function (nontoxic MNG) or may progress to subclinical or overt hyperthyroidism (toxic MNG). [1,2,3,4,5] Multinodular goitre (MNG) is predominantly seen in women and increases with age. Recent global evidence indicates that thyroid nodules overall affect approximately 24.83% of the population (about 1 in 4 individuals),

with a higher prevalence in women (36.51%) than men (23.47%); prevalence increased to 29.29% during 2012–2022. Specific MNG studies show a marked female predominance: an Indian tertiary-care study reported 90% females and 10% males (female:male ratio 9:1), with 59% of patients in the 30–40-year age range. A recent MNG series reported a mean age of 43.9 years, with the largest proportion (39.2%) aged 40–49 years and females comprising 91.7% (female: male ratio 11:1). Thus, current evidence indicates that thyroid nodularity is common in the general population, while clinically recognized MNG shows a strong female predominance and increasing occurrence through middle and older adulthood. [6,7,8,9,10] Multinodular goitre can be broadly classified according to thyroid functional status- [8,11,12,13]

TABLE 1: TYPES OF MNG

1.Non-toxic multinodular goitre	This refers to a multinodular thyroid enlargement without biochemical evidence of hyperthyroidism. Patients are generally euthyroid, although some may have associated hypothyroidism.
2.Toxic multinodular goitre	This refers to a multinodular goitre in which one or more thyroid nodules acquire autonomous hormone-producing activity, resulting in subclinical or overt hyperthyroidism (thyrotoxicosis). It is also referred to as Plummer disease.

Goitre may also be described as based on epidemiology

TABLE 2: EPIDEMIOLOGICAL TYPES OF MNG

Endemic goitre	occurring when goitre prevalence in a population is >10%, traditionally associated with population-level iodine deficiency.
Sporadic goitre	occurring when prevalence is <10% in a region.

Multinodular goitre develops through a progressive process of thyroid enlargement, follicular hyperplasia, focal nodular proliferation and, in some nodules, acquisition of functional autonomy.

Iodine deficiency / Impaired thyroid hormone synthesis

↓

↑ TSH stimulation → TSH acts as a trophic stimulus → Thyroid growth [1]

↓

Diffuse follicular hyperplasia

Persistent stimulation → diffuse enlargement + follicular hyperplasia → progressive follicular heterogeneity [3,5]

↓

Repeated hyperplasia ↔ involution

Recurrent cycles of follicular growth and regression over years → multinodular architecture [3]

↓

Cellular heterogeneity

Different follicular-cell populations show variable growth rates and iodine-handling capacity → formation of distinct nodules [4,14,15]

↓

Genetic & somatic alterations

Somatic mutations + altered growth pathways → constitutive TSH receptor–cAMP activation in some nodules [15,16]

↓

Oxidative stress

Thyroid hormone synthesis → H_2O_2 generation → ↑ oxidative DNA damage → ↑ likelihood of somatic mutations & nodular transformation [15]

↓

Functional autonomy

Some nodules acquire TSH-independent growth and hormone synthesis → activating TSH-receptor mutations in hyperfunctioning nodules [16]

↓

↓ Pituitary TSH

↓

Subclinical → Overt Hyperthyroidism in progressive toxic multinodular goitre [3]

FLOW CHART 1: PATHOPHYSIOLOGY OF MNG

The clinical presentation of multinodular goitre (MNG) varies according to the size, duration, anatomical extension and functional status of the thyroid gland. Patients may remain asymptomatic and present only with a visible or palpable neck swelling, while larger or retrosternally extending goitres may produce compressive symptoms. [1]

TABLE 3: CLINICAL FEATURES OF MNG

Category	Clinical presentation
Local thyroid manifestations	Gradually enlarging, usually painless anterior neck swelling. Nodular/lobulated surface with possible asymmetry. Usually slow-growing; sudden painful enlargement may occur due to haemorrhage into a nodule/cyst. Large goitres may cause cosmetic concerns. Retrosternal/substernal extension may occur. [1,3,4]
Functional manifestations	Euthyroid: common in non-toxic MNG. Hypothyroid: may occur. Hyperthyroid/toxic MNG: palpitations, heat intolerance, sweating, weight loss, tremor, irritability, increased appetite, fatigue/muscle weakness and tachycardia. Atrial fibrillation may occur in older patients. [3]
Tracheal compression	Dyspnoea, exertional breathlessness, stridor, cough, choking/neck pressure and positional respiratory difficulty; rarely acute airway obstruction. Tracheal compression occurs in 55% of patients in a surgical series of 157 compressive MNG cases. [1, 3, 4]
Oesophageal compression	Dysphagia, initially for solids; sensation of food sticking and neck pressure/tightness. Oesophageal compression occurred in 48% of patients in the same surgical series.
Recurrent laryngeal nerve involvement	Hoarseness, voice change and vocal-cord paresis/paralysis. Hoarseness due to recurrent laryngeal nerve palsy should raise suspicion of malignancy, particularly with a thyroid nodule. [3]
Venous/SVC compression	Facial/neck swelling, upper-limb oedema, dilated neck/upper-limb veins, cyanosis and features of SVC obstruction; uncommon and associated with large retrosternal goitres. [1, 4]
Other rare manifestations	Tracheal deviation, retrosternal extension, Horner syndrome, acute respiratory distress following nodule haemorrhage and positional respiratory symptoms. [1, 3]

Multinodular goitre is usually a benign, slowly progressive condition; however, longstanding or enlarging MNG may produce compressive, functional, haemorrhagic and malignant complications. [3,17]

TABLE 4: COMPLICATIONS OF MNG

Complication	Clinical features / significance
Compressive complications	Progressive enlargement, especially with retrosternal extension, may cause tracheal deviation/compression → dyspnoea, cough, stridor and rarely acute airway obstruction. Oesophageal compression → dysphagia. Recurrent laryngeal nerve compression/stretching → vocal-cord paresis and hoarseness. Retrosternal goitres may rarely cause SVC syndrome. Prolonged tracheal compression may result in tracheomalacia. [1, 2, 3, 19]
Thyrotoxicosis	Autonomous nodules may result in toxic multinodular goitre, causing subclinical or overt hyperthyroidism. Complications include atrial fibrillation, cardiac dysfunction and osteoporosis, particularly in older individuals. [1, 3]
Haemorrhage into a nodule	Intrathyroidal haemorrhage into a cystic/nodular component causes sudden enlargement and pain. In large MNG, rapid expansion may increase tracheal pressure and rarely cause acute airway compromise. [17, 20]
Malignancy	Although most MNG nodules are benign, thyroid carcinoma may coexist. Multiple nodules do not exclude malignancy; a dominant, rapidly enlarging or suspicious nodule requires appropriate evaluation. [21]
Retrosternal complications	Mediastinal extension may cause tracheal, oesophageal and vascular compression. Severe cases may result in respiratory failure or SVC syndrome. [18, 20, 22]
Rare complications	Very large or longstanding retrosternal goitres may rarely cause Horner syndrome due to sympathetic-chain compression. Prolonged tracheal compression may lead to tracheomalacia. [17, 19]

CO-RELATION OF EMOTIONAL SUPPRESSION TO MNG

Emotional suppression is a form of emotion regulation involving the conscious inhibition

of the outward expression of an emotion while the emotional response is being experienced. It may involve restraining crying, anger, fear, sadness, verbal expression, facial responses, or other behavioural manifestations of emotion. [23,26] Unlike regulation strategies that modify the emotional response itself, suppression primarily modifies its expression; consequently, the individual may appear emotionally unaffected while the underlying emotional experience persists.[23,24,25] Persistent reliance on suppression may therefore create a discrepancy between internal emotional experience and external emotional expression, particularly when emotions are repeatedly inhibited rather than acknowledged, processed, or communicated.[23,27]

From a broader psychological perspective, emotional suppression can be understood as an attempt to maintain behavioural control over affective states in response to personal, interpersonal, cultural, or situational demands. While temporary suppression may serve an adaptive social function, habitual and inflexible suppression has been associated with greater psychological and physiological regulatory demands and less favourable emotional and interpersonal outcomes. [24,27,28,29,30]

Thus, emotional suppression is not simply the absence of emotional expression; it represents an active regulatory process in which an experienced emotion is deliberately contained or concealed from outward expression. This distinction is fundamental when examining the possible relationship between persistent emotional inhibition, stress-related physiological processes, and endocrine function.

PSYCHO-NEURO-ENDOCRINE PERSPECTIVE

The psychoneuroendocrine perspective describes the bidirectional interaction between psychological, nervous, endocrine and immune systems. Psychological stress acts mainly through the HPA axis and autonomic nervous system, while hormonal and immune signals influence brain function, behaviour and stress responses. [1,3,5,31,32]

1. HPA Axis: Stress activates CRH/AVP → ACTH → cortisol. Cortisol mobilises energy and regulates cardiovascular, metabolic and immune responses through negative feedback. Chronic stress may alter HPA reactivity, producing hyper- or hypocortisolergic patterns. [1,3,5,31]
2. Cortisol: Cortisol supports energy availability, cardiovascular adaptation and immune regulation during stress. Persistent changes in cortisol secretion or diurnal rhythm may contribute to metabolic, immune and psychological disturbances. [31,33,34]
3. Sympathetic Nervous System: The SNS rapidly releases norepinephrine and epinephrine, increasing cardiovascular output and metabolic mobilisation. Sympathetic fibres also influence immune-cell trafficking and cytokine production; repeated activation may cause persistent immune and metabolic changes. [32,35]
4. HPT Axis: TRH → TSH → T_4/T_3 regulates thyroid function. Chronic stress and glucocorticoids may alter TRH/TSH signalling and peripheral thyroid-hormone metabolism, affecting T_3 and reverse T_3. [36,37,38]
5. Cytokines & Immune Modulation: HPA and SNS pathways regulate immune activity through cortisol and catecholamines. Chronic stress may dysregulate IL-1β, IL-6 and TNF-α, while cytokines can act back on the brain and hypothalamus, creating a bidirectional stress–inflammation loop. [5,32,25,39]
6. Integrated Regulation: Neuroendocrine regulation is a dynamic feedback network: psychological stress → neural/endocrine activation → hormonal and immune changes → cytokine and hormonal feedback to the brain, influencing subsequent stress responses. [1,3,5,31,32]

CASE REPORT

Chief complaints - A female patient aged 54 years presented with the following complaints with a gradually enlarging swelling in the anterior aspect of the neck. The swelling had been noticed 23 years previously and had progressively increased in size.

The patient reported symptoms suggestive of local compression, particularly:

- Difficulty in swallowing, especially solid foods
- Sensation of pressure or tightness in the neck
- Intermittent choking sensation
- Difficulty breathing, particularly while lying down
- Neck discomfort due to the increasing size of the swelling
- Change of voice due to compression of nodule

Past history - There was no history of fever, recent infection or acute painful enlargement of the thyroid.

Family history - There was no significant history suggestive of previous neck irradiation. There was no documented family history of thyroid malignancy.

Physical generals - Appetite diminished, Thirst increased, especially for large quantities of water. Tongue mapped with irregular red, denuded areas. Stools hard, dry and difficult, with marked straining during evacuation. Urine occasionally associated with burning pain after urination, Perspiration profuse, greasy/oily, with a tendency to perspire easily. Sleep disturbed, with difficulty falling asleep or frequent waking, often associated with persistent thoughts and brooding dreams of thieves.

Menstrual – attained menopause at age of 49years. Thermally hot patient.

Mental generals - Long-standing grief following emotional disappointment/loss. Tendency to suppress emotions and keep feelings to oneself. Dwells and broods over past events and emotional hurts. Reserved and sensitive nature; prefers to suffer silently and dislikes consolation. Persistent thoughts about past unpleasant experiences, with difficulty letting go.

General Examination - The patient was conscious, oriented and clinically stable. There was no obvious peripheral lymphadenopathy. No clinical features of severe thyrotoxicosis were noted.

Local Examination- Examination of the neck revealed a visibly enlarged thyroid gland with an irregular, nodular surface. The swelling moved with deglutition. Palpation revealed multiple nodules involving the thyroid gland, consistent with a multinodular enlargement. The dominant nodular areas were firm in consistency. There was no obvious fixation to the overlying skin. No clinically significant cervical lymphadenopathy was detected.Because of the patient's compressive symptoms, assessment of the relationship between the enlarged thyroid and the trachea/esophagus was considered clinically important.

Measurements of nodules at the time of visit – largest dimension 12cm transverse dimension 8cm and anterior-posterior dimension 44cm.

Repertorization was done after through case taking and case analysis.

REPERTORIZATION SHEET



Symptoms: 9 Remedies: 888 | Show Repertorisation Tools | Prescribe | Remedy List | Record | Replace | View All | More Results

Remedy Name	Nat-m	Phos	Sulph	Ign	Aur	Bell	Merc	Sep	Ars	Calc	Lyc	Thuj
Totality	33	23	23	22	21	21	21	21	20	20	20	20
Symptoms Covered	9	8	7	6	7	7	7	7	7	7	7	7
Kingdom												
[Complete] [Mind]Grief: (255)	4	2	3	4	4	2	3	3	3	3	4	1
[Complete] [Mind]Brooding: (201)	4	1	3	4	3	2		3	1	2	1	3
[Complete] [Mirilli's Themes]Reserved: (659)	4	4	4	4	4	4	3	3	3	3	3	3
[Complete] [Mind]Consolation, sympathy:Ailments from, agg.: (93)	4	3	3	4	1	3	1	4	3	3	1	3
[Complete] [Neck]Goiter: (207)	4	3	3	3	3	3	3	3	3	4	4	4
[Complete] [Face]Greasy:Perspiration, during: (4)	1											
[Complete] [Stool]Hard: (439)	4	4	4	3	3	4	4	4	3	4	4	4
[Complete] [Mouth]Mapped tongue: (64)	4	3	3				3	1	4	1	3	2
[Complete] [Mind]Dreams:Robbers: (111)	4	3			3	3	4					

REMEDY SELECTION

Natrum muriaticum was selected based on the repertorization as it covered majority of symptoms.

POTENCY SELECTION

0/1 LM potency was started.

FOLLOW-UP

Date	Complaints (Local / Physical / Mental / Measurement)	Remedy	Potency
10/02/2025	**Local:** Thyroid swelling persists. Dysphagia and neck pressure less frequent; choking episodes reduced; occasional dyspnoea while lying down; voice change persists. **Physical:** Appetite slightly improved; thirst increased; constipation persists but stool easier; profuse perspiration; sleep mildly improved. **Mental:** Continues to think about past grief, but emotional intensity reduced; remains reserved. **Measurement:** Multinodular thyroid enlargement clinically present; no new cervical lymphadenopathy.	**Natrum muriaticum**	**0/1**
11/03/2025	**Local:** Dysphagia less troublesome; occasional neck pressure; choking infrequent; breathing comparatively better while lying down; voice change intermittent. **Physical:** Appetite improving; thirst increased; stool hard but straining reduced; perspiration profuse; sleep improving. **Mental:** Less persistent brooding and better ability to divert attention from past events. **Measurement:** Swelling remains palpable; no clinically evident lymphadenopathy.	**Natrum muriaticum**	**0/1**
15/04/2025	**Local:** Dysphagia mainly with large/solid boluses; occasional neck tightness; no significant choking; dyspnoea while lying down reduced. **Physical:** Appetite near normal; constipation improved; stool less dry; perspiration excessive; sleep more settled. **Mental:** Less preoccupation with past grief, though emotional withdrawal persists. **Measurement:** Multinodular enlargement persists without tenderness or fixation. **No further significant change was noted with 0/1; hence potency was advanced.**	**Natrum muriaticum**	**0/2**
10/05/2025	**Local:** Dysphagia occasional; pressure markedly reduced; choking absent/rare; breathing comfortable in most positions; voice change less frequent. **Physical:** Appetite satisfactory; thirst less troublesome; bowel movements improved; perspiration still profuse; sleep improved. **Mental:** Brooding considerably reduced; able to discuss past emotional experiences more openly. **Measurement:** Multinodular enlargement persists clinically; no new cervical lymphadenopathy.	**Natrum muriaticum**	**0/2**
31/05/2025	**Local:** Mild occasional dysphagia; no significant choking; neck pressure minimal; dyspnoea while lying down substantially improved; voice change occasional. **Physical:** Appetite improved; stool softer and easier; perspiration remains profuse; sleep considerably better. **Mental:** Less emotional suppression and reduced brooding. **Measurement:** Thyroid remains enlarged and nodular without new local alarming findings. **No further significant change was noted with 0/2; hence potency was advanced.**	**Natrum muriaticum**	**0/3**
01/06/2025	**Local:** Swallowing considerably more comfortable; no choking; neck tightness occasional; breathing comfortable; voice nearly normal. **Physical:** Appetite satisfactory; thirst persists; constipation largely improved; urinary burning absent; perspiration excessive; sleep restful. **Mental:** Grief no longer constantly occupying thoughts; emotional sensitivity persists but patient is	**Natrum muriaticum**	**0/3**

	less withdrawn. **Measurement:** Multinodular thyroid enlargement persists clinically.		
15/06/2025	**Local:** Dysphagia only occasionally with solid food; no choking; breathing comfortable even while lying down; neck pressure minimal. **Physical:** Appetite good; increased thirst persists; bowel regular; urinary burning absent; perspiration still profuse; sleep satisfactory. **Mental:** More emotionally balanced; less suppression and brooding. **Measurement:** Thyroid enlargement persists without clinically evident cervical lymphadenopathy.	**Natrum muriaticum**	**0/4**
10/07/2025	**Local:** Minimal swallowing difficulty; no choking episodes; no significant dyspnoea; voice change very occasional. **Physical:** Appetite satisfactory; thirst increased; stool regular; perspiration profuse; sleep improved. **Mental:** Occasional recollection of past grief but no persistent brooding. **Measurement:** Multinodular swelling remains clinically appreciable. **No further significant change was noted with 0/4; hence potency was advanced.**	**Natrum muriaticum**	**0/5**
12/08/2025	**Local:** Neck pressure and discomfort minimal; dysphagia mild; no choking or orthopnoea. **Physical:** Appetite normal; thirst adequate/increased; bowel habits regular; perspiration remains excessive; sleep restful. **Mental:** Reduced emotional sensitivity and brooding; able to express feelings more freely. **Measurement:** No new local clinical findings.	**Natrum muriaticum**	**0/5**
10/09/2025	**Local:** Swallowing comfortable; no choking; breathing normal; voice change rarely noticed. **Physical:** Appetite maintained; thirst mildly increased; constipation largely resolved; perspiration persists; sleep satisfactory. **Mental:** Past grief no longer dominant; less tendency to suppress emotions. **Measurement:** Thyroid swelling persists.	**Natrum muriaticum**	**0/5**
13/10/2025	**Local:** Occasional mild dysphagia only; no significant pressure, choking or breathing difficulty. **Physical:** Appetite good; thirst increased; bowel regular; perspiration profuse; sleep satisfactory. **Mental:** Brooding considerably reduced; emotionally more expressive and less withdrawn. **Measurement:** Multinodular enlargement persists clinically. **No further significant change was noted with 0/5; hence potency was advanced.**	**Natrum muriaticum**	**0/6**
14/01/2026	**Local:** Dysphagia markedly reduced/minimal; no choking episodes; no significant dyspnoea while lying down; neck pressure and discomfort substantially reduced; voice change minimal/intermittent. **Physical:** Appetite satisfactory; thirst increased but manageable; bowel regular without significant straining; urinary burning absent; perspiration remains profuse; sleep considerably improved. **Mental:** Marked reduction in brooding and emotional withdrawal; able to express grief more openly and less preoccupation with past events. **Measurement:** Multinodular thyroid enlargement remains clinically appreciable. **Final recorded dimensions: largest dimension – 3 cm; transverse dimension – 2 cm; anterior-posterior dimension – 12 cm.**	**Natrum muriaticum**	**0/6**



FIGURE 1: ANTERIOR VIEW OF THE AFFECTED PART.



FIGURE 2: LATERAL VIEW OF AFFECTED PART.



FIGURE 3: ANTERIOR VIEW OF AFFECTED PART

DISCUSSION

This case highlights the importance of viewing multinodular goitre (MNG) not only as a structural thyroid disorder but also in the context of the patient's psychological and constitutional state. The patient had long-standing MNG with compressive symptoms accompanied by grief, emotional suppression, brooding and difficulty expressing emotions.

During follow-up, dysphagia, choking, positional breathing difficulty and neck pressure progressively improved, alongside reduced brooding, emotional withdrawal and improved emotional expression. Sleep, constipation and thirst also improved. From a psychoneuroendocrine perspective, emotional suppression is not an established cause of MNG, but persistent stress may influence autonomic and neuroendocrine responses and symptom perception.

Importantly, symptomatic improvement should not be equated with structural resolution. The thyroid enlargement remained clinically appreciable, and without serial imaging, reduction in nodule size or thyroid volume cannot be established. Persistent or suspicious nodules therefore require appropriate imaging and, when indicated, cytological or specialist evaluation.

The case also demonstrates the value of assessing mental and physical generals alongside chief complaints, as the patient's grief, emotional suppression, brooding, sleep disturbance, thirst, constipation and perspiration provided an individualized clinical picture.

From a homoeopathic case-management perspective, improvement occurred across multiple domains rather than being limited to neck symptoms. However, as this is a single uncontrolled case without serial objective thyroid measurements, the observed association cannot establish treatment efficacy or causality and should be considered hypothesis-generating.

Future studies could prospectively assess psychological variables, thyroid function, ultrasound-based nodule measurements, symptom scores and validated stress measures to explore possible relationships

between psychological factors, neuroendocrine regulation and symptom burden in MNG.

CONCLUSION

This case highlights a possible psycho-neuro-endocrine dimension in the clinical expression of multinodular goitre, particularly in a patient presenting with long-standing grief, emotional suppression and significant compressive symptoms.

The progressive improvement in dysphagia, choking, positional dyspnoea, sleep, bowel function, brooding and emotional expression suggests a broader improvement in the patient's clinical state during individualized homoeopathic management. However, the persistence of clinically appreciable thyroid enlargement emphasizes that symptomatic improvement cannot be equated with structural resolution.

The case therefore proposes a clinically relevant hypothesis that psychological and neuroendocrine factors may interact with symptom burden and overall well-being in susceptible individuals.

Future studies incorporating objective thyroid ultrasonography, serial nodule measurements, thyroid-function parameters and validated psychological assessment tools are required to determine whether this proposed relationship has reproducible clinical significance.

Ethical Consent

Informed consent was obtained from the patient for the use of relevant clinical information and publication of the case report, while maintaining patient confidentiality.

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Declaration by Authors

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