



## Review Article

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### ASTHI, YAKSHMA AND RAJAYAKSHMA: A REVIEW

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#### ABSTRACT

Nowadays the word Rajayakshma has become synonymous to 'tuberculosis'. But it is not always true. The disease produced by *Mycobacterium tuberculosis* is generally named using some suffix or prefix to tuberculosis e.g. pulmonary tuberculosis, tubercular arthritis, tubercular osteomyelitis etc; but these types of nomenclature of diseases in Ayurvedic system as asthigata rajayakshma, antragata rajayakshma, phusphugata rajayakshma is not applicable. Hence a vide description is needed to clear about the terms yakshma, rajayakshma and sosha.

**Keywords:** Rajayakshma, tuberculosis, sosha

#### INTRODUCTION

Very often the words Rajayakshma, Yakshma, Shosha are used to mean the same. In Samhita they are also mentioned as paryaya (synonyms). Strictly speaking these three words are synonymous in loosely use or popular use as all are concerned with a common disease rajayakshma which is great in gravity and grave in morbidity. Actually there is a very minute differentiation between these three. The word 'yakshma' is the microorganism, which causes the disease rajayakshma. The word rajayakshma denotes to a 'lakshana samuchchaya' (syndrome) having three (tri) six (sada) or eleven (ekadash) clinical features (rupas). And sosha is a condition prior to the establishment of the disease. Sushruta has mentioned that Sosha (Paryaya of Rajayakshma) is a contagious disease, which spreads through droplet, touch etc<sup>1</sup>. According to Charaka Samhita intruder is needed to cause rajayakshma. Here the intruder is 'yakshmana' as per Carak Samhita<sup>2</sup>. As per Modern Science this 'Yakshmana' is discovered as '*Mycobacterium tuberculosis*' on 1882. Shosha is developed by the intake of Viprakrista Nidana which ultimately manifests the disease Rajayakshma after getting Upasarga of Yakshmana organism (sannikrista nidana). To differentiate these two conditions Charaka has written 'Shosha Nidana' and 'Rajayakshma Chikitsita' as separate chapter. Knowledge of shosha nidana is more important than 'Rajayakshma nidana' as the shosha condition of the body is more prone to be affected by 'Yakshma Upasarga'. If a person can avoid the nidana of shosha he may overcome the disease Rajayakshma even after exposure to this organism (Yakshma). As per commentary of Chakrapani on Ekadasha Lakshana of Shosha, stated in Charaka Samhita, it is clear that when shosha appears in its full-fledged form, Rajayakshma is already seated<sup>3</sup>. Atharva Veda, which is the mother of Ayurveda, also informs us that Rajayakshma is due to Krimi (organism). In Atharva Veda it has also been mentioned that the disease Rajayakshma involves Asthi, Amsa, Mamsa, Viryya and many other parts of the body along with lungs. And the Samprapti as well as the 'Ekadasha rupa' of the disease, mentioned in Charaka Samhita, also supports the involvement of the vocal cord, kidney, larynx, pharynx, epiglottis, bones, intestine, joints etc in this disease. Not only that, Rajayakshma

has been classified under Madhyama Roga marga gata roga<sup>4</sup>, which generally includes diseases of bones.

The organism '*Mycobacterium tuberculosis*' infects bone in various forms. It may affect mainly thoracic and lumbar spine to cause tubercular osteomyelitis as well as cause tubercular osteoarthritis by affecting mainly large weight bearing joints. It may also affect spine to cause Tuberculosis of Spine (Caries spine or Pott's disease). Even after considering *Mycobacterium tuberculosis* as 'yakshana', all the diseases, mentioned above cannot be include under rajayakshma as per therapeutic point of view of Ayurvedic classics.

Asthi and sandhi both may be affected by the organism 'Yakshmana'. It is seen more in children though it may occur in any age. The disease may develop in hip, knee, elbow, shoulder, ankle and wrist (synovial) joints in order of frequency. Sandhi affected by Yakshma should be included under Sandhi gata Vata as well as Asthi gata Vata. Yakshma produces three different stages in sandhi. In the stage of synovitis, synovial membrane is affected and becomes thick, oedematous. There is swelling of joint<sup>5</sup> due to effusion as well as hypertrophied synovial membrane<sup>6</sup>. The fluid of effusion is rich in fibrin, which may deposit within the sandhi as loose bodies causing pain<sup>7</sup>. Joint movements may also become restricted<sup>8</sup>. All these symptoms, mentioned above includes under Sandhi gata Vata as per Ayurvedic Classics. In the 'Stage of Arthritis' and in the 'stage of Erosion and bone destruction', articular cartilage and bone are generally destructed respectively to produce pain in bones, small and big joints<sup>9</sup>. 'Pannus' may also be observed. Fibrous ankylosis may induce immobility. Increased blood supply to the area may wash out calcium from bone leading to further destruction and continuous pain<sup>10</sup>. As a result sleeplessness is seen. In all cases of Yakshma affecting sandhis, there are considerable amount of muscle wasting (mamsa kshaya)<sup>11</sup> which affects the joints and lessens the strength (bala kshaya)<sup>12</sup>. All these features are of Asthi Majja gata Vata.

When Asthi is affected by Yakshma, the symptoms of Asthigata Jwara may be seen. Other organisms like *Staphylococcus aureus* etc also may manifest the features of Asthigata Jwara. The major symptoms of this disease are pain in the bone (asthi bheda), irrelevant talk (kujanam), vomiting (vamana), diarrhoea (atisara) and different positioning of the body (gatra vikshepa)<sup>13</sup>. These symptoms are similar to tubercular osteomyelitis. All the symptoms seen above are due to the four stages of osteomyelitis, viz a) stage of suppuration, b) stage of necrosis, c) involvement of superficial tissues, d) development of complications like septicaemia, pyaemia, bacteraemia, toxemia<sup>14</sup> etc. Due to severe pain and necrosis 'night cries' is very common causing kujana. Kujana may be again interpreted as the sound produced at the time of respiration due to septicaemia or bacteraemia like complications (as seen in Kshataja Kasa). Pain again insists patients to keep free their involved bones by keeping body in various position of ease (Alderman's gait) leading to gatra vikshepa<sup>15</sup>.

To diagnose a disease as Asthigata Rajayakshma should fulfil three (tri), six (sada) or eleven (ekadasha) specific clinical features of Rajayakshma and must show the signs of decay of raktadi dhatus (raktadi dhatunam samkshaya). Otherwise it may be merely a dhatukshaya. In the tuberculous arthritis (sandhigata vata/ asthiroga due to Yakshma), there is only asthi and majja dhatukshaya. Pain in asthi (toda)<sup>16</sup>, fatigue (shrama), loosened joints (sandhi shaithilya)<sup>17</sup>, malaise (angasadana)<sup>18</sup> are the clinical features of asthi dhatukshaya. Decaying (shirnata), weakness (durvalata), lightness (laghuta) of bone (asthi)<sup>19</sup>; pain in small and big joints (parva bheda), pain in bone (asthi toda) and feeling of emptiness of joints (asthi shunyata)<sup>20</sup> are the clinical features of majjakshaya. In tuberculous arthritis, tuberculous synovitis symptoms are seen only of dhatukshaya, not of Rajayakshma.

When Yakshma affects spine (known as Pott's disease or Caries spine) it may produce the features of Rajayakshma. Generally Yakshma affects thoraco lumber spine in childhood though other portion of vertebrae may also be involved. Yakshma, after being settled gradually, erodes asthi and at time vertebrae collapses due to weight of vertebral column. It has two complications –a) cold abscess and its spread, b) Pott's paraplegia.

a) Spread of cold abscess: If yakshma affects cervical region, cold abscess may bulge into

- I) Pharynx (causing kasa and swarabheda)
- II) Esophagus, both upper and lower part (causes aruchi as it is produced either by dosha in the tongue or amashaya and chhardi).
- III) Compression of cervical vertebral artery causes headache (shirah shoola).

If bacilli affects upper thoracic region, abscess may remain in:

- IV) Posterior mediastinum (ansavamarda, tiryaka gati of dosha/ urah roga).
- V) May follow intercostal nerves (parshwa shoola).

If affects lower thoracic and lumber region:

VI) Psoas abscess is the commonest presentation (shoola).

b) Pott's paraplegia: Compression of spinal cord either by cold abscess or by the ridge of the bone may produce spastic paralysis of legs, arms (hinanga) and hence wasting of muscles (pariksheena balamamsa and hasta pada shosha), the bad prognostic features (asadhya lakshana) of Rajayakshma as told

by Basavarajiyama, are seen. General symptoms of this disease are deterioration of general health (shosha, karshya), loss of weight, poor appetite (aruchi), lassitude (alasya), evening rise of temperature (pralepaka in nature), which lasts for few weeks or months before typical local symptoms appear. All these symptoms are suggesting this disease as Rajayakshma.

## CONCLUSION

So it may be concluded that involvement of asthi and sandhi in the disease Rajayakshma is well documented by Acharyas in the classics of Ayurveda. Charaka has mentioned jwara and jrimbha in Rajayakshma as because of involvement of sandhi by the doshas. According to Sushruta, the character of this jwara is pralepaka, which again is suggestive of involvement of sandhi. Jwara in Rajayakshma though may be of other types like continuous, if urah kshata is present there. In the Ayurvedic point of view it is now clear that only the infection by Yakshma is not enough to name a disease as rajayakshma, but the specific symptoms of Rajayakshma is necessary.

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