A Crusade Against Scorpion Sting: Life and Works of Dr. Himmatrao Bawaskar

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Abstract

In the times of rapid advancement of science and technology, advance medical equipment and hi tech hospitals represent the face of medical science. The aspirations and ambitions of medical professionals are also shifting, with growing concerns of deterioration of doctor patient relationship as well as disconnect between services and the community needs. The life of Dr. Himmatrao Bawaskar defies several conventions of today’s medical practice. His outstanding dedication towards patients and commitment to provide high quality care in resource poor setting makes him an ideal role model for younger generation of physicians in India.

Keywords: Rural Practice, primary care research, role model for physicians

Tucked away in the scenic yet underdeveloped Konkan region of Maharashtra lies Mahad, a small town that is 175 km to the south of Mumbai. This obscure place is home to one of India’s internationally acclaimed physician and an authority on scorpion sting, Dr. Himmatrao Sahba Bawaskar [Figure 1]. It is true that your path breaking work defines your identity, yet to equate Dr. Bawaskar only with his work on scorpion sting would be a gross injustice to him. This is a humble attempt to describe his work and life.

Early Days

Dr. Bawaskar was born in a small village with a population of 500 in rural Maharashtra to a poor farmer in the early 1950s. He was fondly named as “Himmatrao” meaning “one who is courageous”; it was years later that he proved that no other name would have suited him better. His father recognized that education was the only tool that would liberate the family from their sufferings. The determination to educate his children earned his illiterate father the nickname “barrister.” His childhood was marked with incessant hardships. He had to take up all kinds of jobs from working in the fields, hotels, temples, bookshops, chemist’s shop, brick kiln, and many such odd places to support his education. Adversity taught him that he would have to fight for everything in life and nothing would come easy.

He was enrolled at Government Medical College, Nagpur for his MBBS degree. Misfit in college and with lack of guidance, hard work was the only asset he possessed. He still recounts how he knew complete Gray’s anatomy by heart and emphasizes his deep study of pathology which has proven useful for his research. However, certain circumstances made him depressed and disillusioned during his college days. He lost his confidence and it was only after the completion of his MBBS degree and a prolonged treatment that he came out of the mental trauma.[1] His strong roots with rural parts prompted him to opt for the position of a Medical Officer at a Primary Health Centre (PHC).

Figure 1: Dr. Bawaskar – Making a point

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rather than a housejob at a medical college. Fighting the red tape he managed to get posting at a small PHC in the costal district of Raigad.

Necessity is the Mother of Invention

PHC presented him with a grim picture of the health system. Rampant corruption, unclean premises, and lazy physician peers were the norm. Yet he decided to work there with a great personal interest and slowly reformed the PHC. In a short time, he established himself as a dedicated, honest, and a skilled doctor.

It was here that he was introduced to the problem of scorpion stings for the first time. He had not heard of deaths due to scorpion stings till then and was surprised to know that such deaths were common in his area of clinical practice. Added to the problems were the superstitions which denied such cases medical care or worsened them even further. This stimulated the scientist within him and he started to collect data on such cases from past records, other doctors, and lay people in general. However, he found this information inadequate and unreliable, so he decided to admit all the cases and study them on his own. The need of the people to have a sure, scientific, and a safe cure for this menace formed the base of his work thereafter.

In such a resource poor setting, his only tools were a stethoscope and a modest sphygmomanometer [Figure 2]. However, his keen observation, thorough knowledge, and meticulous record keeping compensated for the lack of resources. He spent sleepless nights sitting beside the patients, monitoring them and noting the subtle changes. He found common symptoms of vomiting, hypertension, profuse sweating, cold extremities, priapism, and mild tolerable pain followed by ropy salivation, arrhythmias, hypotension, frothy expectoration and peripheral circulatory failure. Thus, he observed that the immediate cause of death in these cases was pulmonary edema. He tried traditional methods of symptomatic treatments with Atropine, Beta-blockers, Chlorpromazine, Aminophylline, etc., but these methods did not yield the desired results. He sent his findings to Haffkine institute where further tests were conducted on guineapigs. His letter stating these findings was published in The Lancet in 1978.[2]

In the meantime, he realized that his education was inadequate for the needs of his quest. To further his skills and knowledge, he applied for MD in Medicine at B.J. Medical College, Pune. Here too, he distinguished himself as a keen clinician. He mastered advanced techniques and intensive care. In the light of his new found knowledge, he prepared a paper on data of 51 cases of scorpion stings and sent it to an Indian journal. It was rejected for editorial reasons like “English writing not good enough.” He sent the same paper to Lancet and received a response within 8 days that the report was accepted with minor changes. Thus, his first individual paper titled “Diagnostic cardiac premonitory signs and symptoms of red scorpion sting” was published in The Lancet in 1982.[3] He recounts how a case of scorpion sting succumbed in the tertiary care hospital where he was working. Thus he wondered, if a person could not be saved in such well-equipped settings, what could a clinician do in a PHC like setup? [Figure 3] Also, he was successful in understanding that heart failure due to the sting was similar to a refractory heart failure like condition. He decided to use Sodium Nitroprusside for sting-related heart failure and was successful in managing many cases!

The Eureka Moment

After he earned the MD degree, another name of Dr. Mrs. Pramodini Bawaskar was added to the academic endeavors of Dr. Himmatrao Bawaskar. The couple returned to Konkan only to find that the problem was the same as he had left it. In Oct 1983, a 8-year-old child was admitted with all the symptoms of severe scorpion envenomation. As he developed pulmonary edema his chances of survival started declining. Dr. Bawaskar asked for his father's consent to use Nitroprusside explaining the dangers of this drug. He postulated that it would decrease both the preload and afterload on the victim's heart with increased cardiac emptying. With the faith and trust invested by

Figure 2: Tools of research – A humble stethoscope and a BP apparatus
Figure 3: A makeshift 'doll' stretcher – Shows the sorry state of facilities in rural parts
the victim's father, he administered Nitroprusside drop by drop monitoring the child minute by minute. After 4 h, the victim gradually started showing signs of recovery, the blood pressure started rising, pulmonary edema subsided, pulse rate dropped and started oral feeds. 24 h later and almost on the verge of crying, he declared that the boy was saved! When he was monitoring the child, he received a telegram informing the death of his father. He was in a dilemma to choose between his family obligations and his duty as a doctor. He chose the latter and stayed with the child as he believed that there were people who could take care of the funeral, but the child needed him more. This he considers was a far greater tribute he has paid to his father.

The news spread far and wide and patients from all over Konkan started pouring in for the cure. Where death was considered a norm after a poisonous sting, in a short span of one month he cured 65 patients of pulmonary edema. However, the next problem emerged sooner than expected. Sodium Nitroprusside is a dangerous drug which has to be rigorously monitored, and even in ICUs it is used with apprehension. Therefore, the next challenge was to find a safer alternative which could be easily administered even in peripheral settings. Again Dr. Bawaskar was back to the library and started an extensive search in journals. Here, he chanced upon a new drug Prazosin, an alpha blocker. It was advocated for refractory heart failure and was used in Pheochromocytoma to control the hypertension caused by catecholamine excess. He had already discovered that the pathophysiology in scorpion sting was the pouring of catecholamines in the blood due to the venom’s action on the human adrenal gland. Thus, he decided to use this drug. In 1984, he treated 126 patients with Prazosin; all of them survived. In 1986, in his paper titled “Prazosin in the management of cardiovascular manifestations of scorpion sting” was published in The Lancet he put forward for the first time Prazosin as a physiological antidote for scorpion stings.

His work started getting recognition internationally as Prazosin's success was duplicated all over the world. His next mission was to spread this treatment among the doctors back home. For this, he arranged various seminars, regularly communicated with other doctors and regularly sent them academic materials on the same issue. The case fatality rate dropped down from 40% to less than 1% with this treatment. He also kept on improvising and standardizing the regimes with regular publications in international journals such as JAPI, BMJ, Lancet, and the British Heart Journal, etc. Another important facet of his research is that all this work was done with out pocket funding without any funding from government or external agencies. It makes us think, do we need all types of resources and facilities or pure passion to pursue research that could benefit mankind? Dr. Bawaskar is an exemplar for the fact that research truly related to upliftment of human life needs a higher level of dedication! He is considered an international authority on scorpion sting and has even authored two chapters in the API textbook of medicine. Prazosin as a treatment for scorpion sting has been incorporated in Satoskar’s Textbook of Pharmacology. The January 2011 issue of the British Medical Journal includes a full paper of his randomized trial conducted to compare the efficacy of scorpion antivenom + Prazosin and Prazosin alone. The same issue carries an editorial highlighting the importance of research in resource poor settings and how Dr. Bawaskar had overcome the subjectivity and some shortcomings in his study by his dedication and time tested methods of clinical observation.

Other Areas of Work

Dr. Bawaskar currently has a private practice in Mahad (Maharashtra) assisted by his wife. His hospital is well equipped for primary intensive care and the couple attends to all the patients without any nursing staff.

His other areas of study are the problems he has encountered first hand in the rural area. Following are some of his areas of studies which have been translated into various publications:

1. He has published a manuscript on thrombolytic therapy in AMI in rural settings. What prompted him to study this was the fact that chronic diseases and CHDs have a high prevalence in this area due to excessive salt consumption, usage of coconut oil for cooking, and other lifestyle-related risk factors.

2. Alarmed with the rising cases of chronic renal failure in his native place, he studied the problem and found out that heavy metals in drinking water were an important risk factor for the same.

3. In a small village near Mahad, girls left college due to yellowish discoloration of teeth. It was diagnosed as dental fluorosis the source traced to high content of fluoride in the drinking water.

4. Based on his experience with thyroid disorders and having himself been a victim of a thyroid ailment, he developed a premonitory score to suspect Hypothyroidism in a rural setting.

5. A serendipitous observation during the treatment of scorpion envenomation prompted him to suggest that the venom might prove useful for the treatment of Brugada syndrome.

6. Another common animal bite discussed in detail by Dr. Bawaskar is the snake bite. The absence of local reaction in Krait bite masks the underlying severity and delays treatment. Often, the accompanying abdominal pain is erroneously diagnosed as appendicitis. Thus, he observed that a victim waking up from sleep from floor bed at midnight due to abdominal pain with early ptosis should be diagnosed with krait bite. In villages, women going to toilet in the open early in the morning were seen as a risk factor for Russels viper bite in which in 30-40% of the cases death was due to acute renal failure (ARF). Early administration of AsV, Mannitol, Frusemide, and Acetylslyteine prevent ARF due to the Russels viper bite. Also, he suggested simple remedies as sleeping on a cot and the use of mosquito net as protection against any kind of bites.

7. At present the Bawaskar couple is investigating and has found increased levels of lead in petrol pump workers, Ganpati idol makers, women using lipstick and surma.
All these examples depict how Dr. Bawaskar remains close to reality and his research is driven by day to day experience from his surroundings for betterment of human life, rather than from lucrative offers from private companies that have made medical research a commercial profession that often renders fewer outcomes for improving human health.

Through many of his correspondences in various journals and books, he has voiced the concerns for ethics and principles in medical practice, HIV-related issues and practice and research in rural areas. He is an ardent advocate of importance of clinical skills in practice and community and need based research. He has over 60 publications in international and national journals to his credit including seventeen letters, one manuscript, and three case reports in The Lancet. He has been an invited speaker at many national and international conferences. He has written his autobiography in Marathi “Barristerche karte.” He has authored a monogram titled ‘Scorpion Sting’ for medical professionals with a foreword by Dr. David Warrell, editor of the Oxford textbook of medicine [Figure 4].

Some Reflections

Dr. Bawaskar has earned everything the hard way. The techniques used by him may not be sophisticated yet the dedication, efforts and knowledge he has put in to sharpen those techniques have turned them into powerful weapons of his work. He proves the golden adage that the most important part of a stethoscope is between the ear pieces! He underlines the fact that research should derive its roots from the real problems of people in the community and it should be directed to solve those problems. An overview of his life finds him demanding “do not judge me from where I stand, judge me from where I have come.”

A message from Dr. Bawaskar

“We owe our learning, earning, and satisfaction to our ancestors (scientists) who blessed us with their research which gave us direction. It is our moral duty to repay them by engaging ourselves in, contributing to and publishing the research for the benefit of our future generations. This can be done only by performing our honest, sincere, and dedicated duty every single day. Never neglect what the patient or his relatives have to say since they are the sole reason of your existence as a doctor.”

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